



2019
-
2026

Comprehensive Water Resources Management Plan



**Adopted
December 6, 2018**

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AMENDMENTS

Emergency Declaration, Amended by Scott County Board March 19, 2019, Effective March 19, 2019; Resolution No. 2019-030, Amend Section 5, Implementation, Capital Improvement Program Table 5.4

Amendment No. 1 – Amended by Scott County Board August 6, 2019, Effective August 6, 2019. Amend Section 5, Implementation, Capital Improvement Program Table 5.4

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TERMS AND ACRONYMS

Term	Acronym	Definition/Description	For more information
Aquatic Invasive Species	AIS	Non-native plants, animals or pathogens that live primarily in water, thrive in new environments and can cause economic, environmental damage, and harm human health.	www.dnr.state.mn.us
Best Management Practice	BMP	Structural or engineered control devices and systems (e.g. retention ponds, raingarden) to treat polluted stormwater, as well as operational or procedural practices.	www.epa.gov
Cedar Lake Improvement District	CLID	A tax district with a public board that governs lake improvement projects.	www.cedarlakeimprovement.org
Board of Commissioners	Board	The governing board of SWMO consisting of five elected officials from the five districts within the county.	www.scottcountymn.gov
Capital Improvement Program		An itemized program for at least a five-year period, and any amendments to it, subject to at least biennial review, setting forth the schedule, timing, and details of specific contemplated capital improvements by year, together with their estimated cost, the need for each improvement, financial sources, and the financial effect that the improvements will have on the local government unit or watershed management organization.	
Capital Improvement Project	CIP	A physical improvement that has an extended useful life.	
Citizen-Assisted Monitoring Program	CAMP	Volunteers who assist with the water quality monitoring program by collecting water samples and gathering other applicable water resource information.	www.metrocouncil.org
Colony Forming Units	CFU	Bacterial pollution, measured as the concentration of fecal coliform or E. coli organisms.	www.pca.state.mn.us
Designated Uses		Specific uses identified for all waterbodies, both surface water and groundwater. Examples of designated uses are drinking water, aquatic life and recreation, aesthetic enjoyment, and wildlife.	www.pca.state.mn.us
Dissolved Oxygen	DO	The amount of oxygen dissolved in a body of water as an indication of the degree of health of the water and its ability to support an aquatic ecosystem.	www.dnr.state.mn.us

TERMS AND ACRONYMS

Term	Acronym	Definition/Description	For more information
Environmental Protection Agency	EPA	A federal agency with a mission to protect human health and the environment.	www.epa.gov
Environmental Quality Information System	EQulS	A database managed by the Minnesota Pollution Control Agency to store water-related monitoring data and associated laboratory results from sampling locations across the state.	www.pca.state.mn.us
Geographic Information System	GIS	A computer based program used to develop maps and analyze data.	
Impaired Waters List or 303d List		As required by the Clean Water Act, if a water body does meet one or more water quality standards (bacteria, nutrients, turbidity, mercury, etc.) and cannot meet its designated uses (drinking water, fishing, swimming, etc.), it is added to the MN Impaired Waters 303d list and a TMDL study is completed to set pollution reduction goals needed to restore the waterbody.	www.pca.state.mn.us
Joint Powers Agreement	JPA	A formal, legal agreement between two or more public agencies that share a common power and want to jointly implement programs, build facilities, or deliver services.	www.scottcountymn.gov
Load Allocation	LA	A calculation of the total amount of a pollutant from point and non-point sources that a waterbody can receive and still meet water quality standards. Related: Waste Load Allocation (WLA).	www.pca.state.mn.us
Local Government Unit	LGU	All divisions of government below the regional level.	
Local Water Management Plan	LWMP	A plan prepared and implemented by local water management authorities to manage surface water. Minnesota Rule Chapter 8410 defines the plan content.	www.bwsr.state.mn.us
Margin of Safety	MOS	A number (i.e. %) which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. It accounts for uncertainty.	
Metropolitan Council Environmental Services	MCES	MCES provides services to the seven-county metro area regarding wastewater collection and treatment, water resources, energy and sustainability.	www.metrocouncil.org
Micrograms per liter	µg/L	A measurement unit used in water analysis. Also equal to parts per billion (ppb).	

TERMS AND ACRONYMS

Term	Acronym	Definition/Description	For more information
Milligrams per liter	mg/L	A measurement unit used in water analysis. Also equal to parts per million (ppm).	
Minnesota Board of Water and Soil Resources	BWSR	BWSR is the state soil and water conservation agency, and it administers programs that prevent sediment and nutrients from entering our lakes, rivers, and streams; enhance fish and wildlife habitat; and protect wetlands.	www.bwsr.state.mn.us
Minnesota Department of Agriculture	MDA	MDA's mission is to ensure the integrity of the food supply, the health of the environment, and the strength of the agricultural economy.	www.mda.state.mn.us
Minnesota Department of Health	MDH	MDH's mission is protecting, maintaining, and improving the health of all Minnesotans.	www.health.state.mn.us
Minnesota Department of Natural Resources	MDNR	DNR works with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.	www.dnr.state.mn.us
Minnesota Department of Transportation	MDOT	MDOT's mission is to plan, build, and maintain a safe, accessible, efficient, and reliable multimodal transportation system.	www.dot.state.mn.us
Minnesota Pollution Control Agency	MPCA	The MPCA monitors environmental quality, offers technical and financial assistance, and enforces environmental regulations.	www.pca.state.mn.us
Municipal Separate Storm Sewer System	MS4	An MS4 is a conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, gutters, ditches, storm drains, etc.) that is publicly owned. Stormwater discharges associated with MS4s are subject to regulation under the National Pollutant Discharge Elimination System (NPDES). MS4s in SWMO are: Municipalities of Prior Lake, Shakopee, Scott County, Savage, Credit River Township, Jackson Township, Spring Lake Township, Louisville Township, and MDOT.	www.pca.state.mn.us
National Oceanic and Atmospheric Administration	NOAA	A federal agency under the Department of Commerce charged with evaluating and predicting changes in climate, weather, oceans, and coasts; sharing that knowledge and information with others, and conserving and managing coastal and marine ecosystems and resources.	www.noaa.gov

TERMS AND ACRONYMS

Term	Acronym	Definition/Description	For more information
National Pollutant Discharge Elimination System	NPDES	A permit program authorized by the Clean Water Act that controls water pollution by regulating point sources that discharge pollutants into waters of the United States.	www.epa.gov
National Wetlands Inventory	NWI	The NWI is managed by the U.S. Fish and Wildlife Service and provides information to the public on the extent and status of the Nation's wetlands. The NWI produces maps or digital databases regarding wetlands and reports on wetland trends.	www.fws.gov
Nitrate	NO ₃	A compound used in fertilizer that acts as a nutrient in soil and a pollutant when found at high levels in groundwater and surface water.	
Nonpoint Sources		Pollution in runoff and seepage from land areas. Within SWMO, this is largely due to urban road runoff from streets, yards, and construction sites.	www.pca.state.mn.us
pH	pH	A measure of how acidic or basic a substance, such as water, is. The range of measurement goes from 0-14. Values above 7 indicate alkalinity; values below 7 indicate acidity. How acidic water is has a significant effect on chemical and biologic processes within the water.	
Phosphorus	P	A chemical element used in fertilizers and other products that acts as a nutrient in soil and a pollutant when found at high levels in groundwater, surface water, and wastewater. Related: Soluble Reactive Phosphorus (SRP) and Total Phosphorus (TP).	
Point sources		Pollution from municipal or industrial facilities, usually entering a waterbody via discharge from a pipe or channel.	www.pca.state.mn.us

TERMS AND ACRONYMS

Term	Acronym	Definition/Description	For more information
Public Waters		The DNR designates certain water resources as public waters to indicate those lakes, wetlands, and watercourses over which the DNR has regulatory jurisdiction. By statute, the definition of public waters includes both “public waters” and “public waters wetlands”. The collection of public waters and public waters wetlands designated by the DNR is generally referred to as the public waters inventory, or PWI. Public waters are all waterbasins and watercourses that meet the criteria set forth in Minnesota Statutes, Section 103G.005, Subd. 15 that are identified on public water inventory maps and lists authorized by Minnesota Statutes, Section 103G.201. Public waters wetlands include all type 3, type 4, type 5 wetlands, as defined in U.S. Fish and Wildlife Service Circular No. 39, 1971 edition, that are 10 acres or more in size in unincorporated areas or 2.5 acres or more in size in incorporated areas (see Minnesota Statutes Section 103G.005, Subd. 15a and 17b.)	www.dnr.state.mn.us
Public Waters Inventory	PWI	The DNR conducted the original public waters inventory in the late 1970s, maintains and updates the inventory records, and provides maps of public waters.	www.dnr.state.mn.us
Quality Assurance/ Quality Control	QA/QC	The process or set of processes used to assure the quality of water samples and monitoring data. SWMO has a QA/QC in place for its water quality monitoring program.	www.scottcountymn.gov
Riparian		Relating to, living on, or located on the bank of a natural watercourse or lake.	
Secchi Disk Transparency	SDT	The term used describing the results of a Secchi reading, expressed in feet or meters. It measures the clarity of the water.	www.pca.state.mn.us
Soil and Water Conservation District	SWCD	LGUs that manage and direct natural resource management programs at a local level. Districts work with landowners and other units of government to carry out a program for the conservation, use, and development of soil, water, and related resources.	www.bwsr.state.mn.us
Storm Water Pollution Prevention Plan	SWPPP	Holders of NPDES permits must prepare a SWPPP in order to obtain permit coverage for stormwater discharges.	www.pca.state.mn.us
Subwatershed		A smaller geographical unit of a watershed.	

TERMS AND ACRONYMS

Term	Acronym	Definition/Description	For more information
Sustainable Lake Planning		A report covering the subwatershed area of a particular waterbody which provides information about the overall health of the lake and trends within the ecosystem, along with lake management plans."	www.scottcountymn.gov
Sustainable Lake Management Plan	SLMP	A report covering the subwatershed area of a particular waterbody which provides information about the overall health of the lake and trends within the ecosystem, along with lake management plans.	www.scottcountymn.gov
Technical Advisory Committee	TAC	A group consisting of stakeholders and partnering agencies which provides guidance and input for the SWMO.	
Technical Advisory Commission	TAC	A commission composed of persons appointed by each municipality within Scott County assigned with technical business decisions or to give recommendations to the SWMO.	www.scottcountymn.gov
Technical Evaluation Panel	TEP	A group consisting of a representative from the SWCD, BWSR, DNR, and WCA LGU to review actions affecting wetlands.	www.bwsr.state.mn.us
Total Maximum Daily Load	TMDL	A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, as well as an allocation of that load among the various sources of that pollutant. A TMDL Study identifies all sources of the pollutant and determine the load reductions needed to meet state standards. The TMDL Implementation Plan identifies strategies to achieve the necessary reductions.	www.pca.state.mn.us
Waste Load Allocation	WLA	Pollutants that originate from a point source are given allowable levels of contaminants to be discharged. The WLA is assigned to MS4s as part of the TMDL study.	www.pca.state.mn.us
Watershed Restoration and Protection Strategy	WRAPS	A document summarizing scientific studies of a major watershed; identification of impairments and waterbodies in need of protection; identification of biotic stressors and sources of pollution; TMDLs for the impairments, and an implementation table containing strategies and actions designed to achieve and maintain water quality standards and goals.	www.pca.state.mn.us

TERMS AND ACRONYMS

Term	Acronym	Definition/Description	For more information
Total Phosphorus	TP	A chemical element used in fertilizers and other products that acts as a nutrient in soil and a pollutant when found at high levels in groundwater, surface water, and wastewater. TP levels are monitored as an indicator of water quality. Related: Phosphorus (P), Soluble Reactive Phosphorus (SRP)	
Total Suspended Solids	TSS	Measurement of suspended materials (soil particles, algae, plankton, microbes, etc.) which limit sunlight, inhibit oxygen uptake by fish and alter habitat.	www.pca.state.mn.us
Scott Water Management Organization	SWMO	The abbreviated name of the organization that will carry out this Water Plan.	www.scottcountymn.gov
Water Management Organization	WMO	An organization mandated by the State to create and implement a watershed management plan as detailed by Minnesota Rules Chapter 8410.	www.bwsr.state.mn.us
Watershed		An area of land draining into a river, river system, or waterbody which can cover tens to hundreds of square miles and cross several jurisdictions.	
Wellhead Protection Areas		A surface or subsurface land area regulated to prevent contamination of a well or well-field supplying a public water system.	www.health.state.mn.us
Wetland Conservation Act	WCA	A State law that requires anyone proposing to drain, fill, or excavate a wetland first to try to avoid disturbing the wetland; second, to try to minimize any impact on the wetland; and, finally, to replace any lost wetland acres, functions, and values. Local Municipalities and the Scott Soil and Water Conservation District act as the LGU for WCA within the watershed except in MDOT right of ways.	www.bwsr.state.mn.us

Executive Summary

PURPOSE OF PLAN

The Scott Watershed Management Organization (SWMO) Water Resource Management Plan, (Water Plan) fulfills the requirements of the Minnesota Metropolitan Surface Water Act of 1982, Minn. Stat. Chapter 103B. The overall purpose of this plan is to protect, preserve, and manage natural surface and groundwater systems within the SWMO and Scott County in response to rapid urban growth and agricultural activity. The plan also presents sustainable and equitable means to effectively reach those goals by providing policy guidance and specific standards for decision-makers, residents, landowners, educators, and implementing staff at the local level. This is the SWMO's third generation Water Plan, the first Plan was adopted in 2004. The 2019 Plan presents issues that affect water resources within the WMO and an implementation plan to manage those resources. This 2019 Plan will address water management over the next 8 years (2019-2026).

This Water Plan focuses on priorities. Several major issues and priorities were chosen to be addressed over the eight-year period of the Plan. These priorities were identified through a planning process of meetings by staff, citizens, the SWMO Technical Advisory Committee (TAC), Watershed Planning Commission (WPC) and the SWMO Board (Board). These priorities are:

- 1) The protection of Human Health and Safety particularly with respect to both
 - a) groundwater protection, and
 - b) exposure to toxics and bacteria in surface waters.
- 2) Protection and prevention are a higher priority than restoration.
- 3) Improving underlying factors like soil health are a priority because they ultimately affect water quality.
- 4) Using available information to get started on implementation is preferred to postponing action pending additional study and planning.

Some of these priority directions are new to the SWMO and change will not be immediate. This also does not mean that the SWMO will completely drop efforts that currently focus in other areas or pollutants. For example, the previous plan had a Sand Creek sediment reduction

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strategy. The SWMO intends to see this and other strategies through, but will use this Plan to begin to shift more resources to the above priorities.

This plan is intended to be part of an ongoing process of water resource planning and implementation, and is to be integrated with the other planning occurring at city, county, township and state levels.

PLAN ORGANIZATION

The Scott WMO Water Resource Management Plan is organized into six sections:

Executive Summary: Provides an overview of the Plan.

Section 1 – Land and Water Resource Inventory: Presents the current and historic background and inventory information regarding the physical, hydrological, biological, and human environment of the watershed.

Section 2 – Issue Identification and Assessment: Provides an overview of the plan development process, input process from the public and stakeholders, self-assessment of the previous plan, assesses the adequacy of existing controls and identifies potential management gaps and ends with issues identified during the planning process.

Section 3 – Priorities, Vision, Principles Goals, and Policies: Presents the overall vision, basic guiding principles, goals and policies for water resource management in the SWMO through the year 2026.

Section 4 – Strategies: Presents the strategies for water resource management of the Scott SWMO through 2026.

Section 5 – Implementation: Describes the implementation elements of the Plan and its impact on residents and local governments. This section provides an implementation program table and preliminary annual budgets.

Section 6 – Administration: Presents the administrative functions of the Scott WMO and Local Water Planning authorities with respect to regulation, financing, and administering implementation of the program described in Section 5.

WATERSHED ISSUES AND DESIRED OUTCOMES

Watershed issues are problems or concerns that have been identified by both the Board and citizens, and need attention and implementation of corrective measures. Partnership meetings were held with the SWCD Board, TAC and WPC as well as updates to the Board. Public input was solicited through May 23, 2018. In addition, input from state agency representatives was solicited early on in the planning process to address concerns as early as possible. Eleven issues were identified in Section 2.

Goals are the outcome desired by the SWMO. Policies express the WMO's philosophy about certain watershed management approaches to be used for achieving the goals. Strategies are the specific programmatic approaches the SWMO will use to implement policies and work toward goals. Total, the SWMO has eight goals. Five of these goals have resource based outcomes, and three have operational outcomes they are:

- Goal 1: Wetland Management. To Protect and Enhance Wetland Ecosystems, and to Ensure/Encourage a Measurable Net Gain of Wetland Functions and Acreage.
- Goal 2: Surface Water Quality. To Protect and Improve Surface Water Quality
- Goal 3: To Protect Groundwater Quality and Supplies
- Goal 4: Flood Management. To Protect Human Life, Property, and Surface Water Systems From Damage Caused by Flood Events
- Goal 5: Collective Action, Increase Adoption of Actions and Practices that Protect and Improve Water Resources
- Goal 6: Optimize Public Expenditures
- Goal 7: Build a Resilient Landscape
- Goal 8: Public Drainage. Maximize the Public Value of the Public Drainage Systems

WATERSHED MANAGEMENT VISION

The Scott WMO's vision is:

EXECUTIVE SUMMARY

To compile a system of well buffered water courses, wetlands and lakes surrounded by an upland where engaged citizens, businesses and partners work with the SWMO to reduce runoff volumes, control peak flows and their timing, and minimize pollutant generation and export to meet local water resource priorities.

This vision and the following goals and policies, as well as the strategies presented in Section 4, were developed based on the following Guiding Principles. These principles are in large part driven by the understanding that the SWMO does not have the capacity or resources to achieve desired outcomes on its own.

- 1) Achieving desired water resource outcomes is a shared responsibility between state and local government and the public.
- 2) Available resources will be focused on achieving priorities with realistic expectations.
- 3) Using, building on, and/or enabling existing management programs before initiating new or duplicative programs.
- 4) Building, sustaining and utilizing partnerships are the preferred means of achieving goals and priorities.
- 5) Building capacity of individuals, communities and organizations to implement conservation is needed to achieve results in a long term and sustainable manner.
- 6) Emphasizing prevention by creating a buffered and resilient aquatic environment; utilizing tools and programs aimed at promoting soil health; reducing runoff volumes and peak flows; and keeping homes, businesses and infrastructure out of harm's way (i.e. areas at risk of flooding and landslides).
- 7) Measuring, adapting and learning while implementing.

IMPLEMENTATION

The SWMO has nine Programs that it uses to implement this Plan. Table 5-2 shows how each of the 17 Strategies included in the Plan fit into these Programs. The SWMO budget is set annually by the County Board acting as the SWMO. Many of the decisions and the amount of effort and investment are discretionary decisions by the County Board. This Plan lays out considerations and priorities for decision-making, and the Board is advised by a Watershed Planning Commission and staff. The amount of effort and annual budgets are also dependent upon resources from others, particularly (federal and state) grants. Finally, the Scott Soil and Water Conservation District is an important implementation partner and staffs several of the SWMO Programs.

EVALUATING OUR PROGRESS

The SWMO is committed to being accountable and to learning and adapting quickly as a means of continuous improvement. To achieve this commitment, the SWMO has embraced the development of metrics for most of its programs. It has also developed several overall resource based metrics. They are called Key Program Indicators (KPIs) and are generally of two types: 1) those that measure how much is being accomplished and 2) those that reflect how effectively cumulative outcomes are being achieved. KPIs will be calculated annually (with the exception of stream water quality trends, and landowner survey responses). They will be used by the SWMO to learn how to improve and adapt, for annual budget decisions, as information for writing education and outreach stories, and reported in the Annual Report and Newsletter.

In addition to annual assessment of KPIs as discussed above, the SWMO will complete more detailed program assessments every two to three years. These assessments will compare progress made on the various strategies and programs, with what is listed and scheduled in the Plan.

SECTION 1 – LAND & WATER RESOURCE INVENTORY

Section 1

INTRODUCTION

Scott County was established and organized by an Act of the state legislature on March 5, 1853. The County, with an area of 375 square miles, is comprised of 11 townships and seven cities. The County was the fastest growing county in Minnesota during the decade of the 1990s. During that period the County's population grew almost 55 percent from 57,846 persons in 1990 to 89,498 in the 2000 Census. Between 2000 and 2010, the County's population grew another 31% to 129,928 residents, most of which live in the cities (83%). Scott County was the fastest growing county in the Twin Cities Metropolitan and neighboring areas in 2015. A detailed discussion of the Scott County history and population trends can be found in the Scott County 2040 Comprehensive Plan Update and on the County's web site at <http://www.scottcountymn.gov> (Scott County, 2017a).

The Scott Watershed Management Organization (SWMO) covers the majority of Scott County and is comprised of portions of five watersheds: Sand Creek, Southwest, Shakopee Basin, Credit River, and portions of Prior Lake Spring Lake (Map 1). The remainder of the County is within one of three other watershed jurisdictions: the Lower Minnesota River Watershed District, the Prior Lake Spring Lake Watershed District, or the Scott County portion of the Vermillion River Joint Powers Organization (Map1). Because the SWMO covers most of the County, some of the following inventory information is presented on a County basis rather than the SWMO. The maps referred to within the text of this document are located after Section 6.

Prior to settlement by Euro-American pioneers, Scott County and the SWMO had large areas of hardwood forests with some pockets of prairie land. Today most of that land has been cleared for farming and human settlement. Land use and land cover across the SWMO is diverse and ranges from urbanized areas to agricultural operations. More information on land cover in Scott County is available through the Minnesota Geospatial Commons (Commons, 2017) and in Table 1.11 on page 1-56.

This section presents the existing conditions of land and water resources in the SWMO. The section is organized to present information on the SWMO's physical environment (such as

SECTION 1 – LAND & WATER RESOURCE INVENTORY

topography, geology, aquifers, climate and precipitation, soils, information on surface water resources), biological environment (fish and wildlife habitat information, rare and endangered species, and invasive species) surface and ground water quality and quantity—including trends, stormwater drainage systems, and information on potential pollutant sources, and existing land uses.

PHYSICAL ENVIRONMENT

Topography

General Topographic Relief. The advance and retreat of glacial ice sheets, the remnants of terminal moraines, and subsequent dissection by streams and rivers has left much of the present-day topography in Scott County rolling to strongly rolling. To understand the extent of how these glaciers impacted our topography, please view Figure 1.1 on page 1-3. It shows the extent of the mighty glacial River Warren, which is now the Minnesota River Valley. Glacial River Warren drained the very large glacial Lake Agassiz, which covered western Minnesota, eastern North Dakota, and western Ontario (MPCA, 2009). The volume of water Glacial River Warren carried southward cut through sediment deposited by earlier glaciers, and even the underlying bedrock, producing very steep valley slopes to the Minnesota River Valley (see Figure 1.1). As a result, modern day tributaries are incising into the glacial till on these steep slopes, and depositing a lot of sediment into the Minnesota River.

Today, the rolling topography provides for generally good drainage throughout most of the County, from south to north. However, due largely to the advance and retreat of glacial sheets, the geology of the area is extremely complex and contains areas of fine textured soils, clay lenses, and high or perched water tables. Consequently, there are many small closed basins with small ponds or wetlands throughout the County. These are especially prevalent in the lower elevation portions of the County such as Savage, and the northern part of Credit River Township. In the past, the principal land use in this part of the watershed was small subsistence farms.

SECTION 1 – LAND & WATER RESOURCE INVENTORY

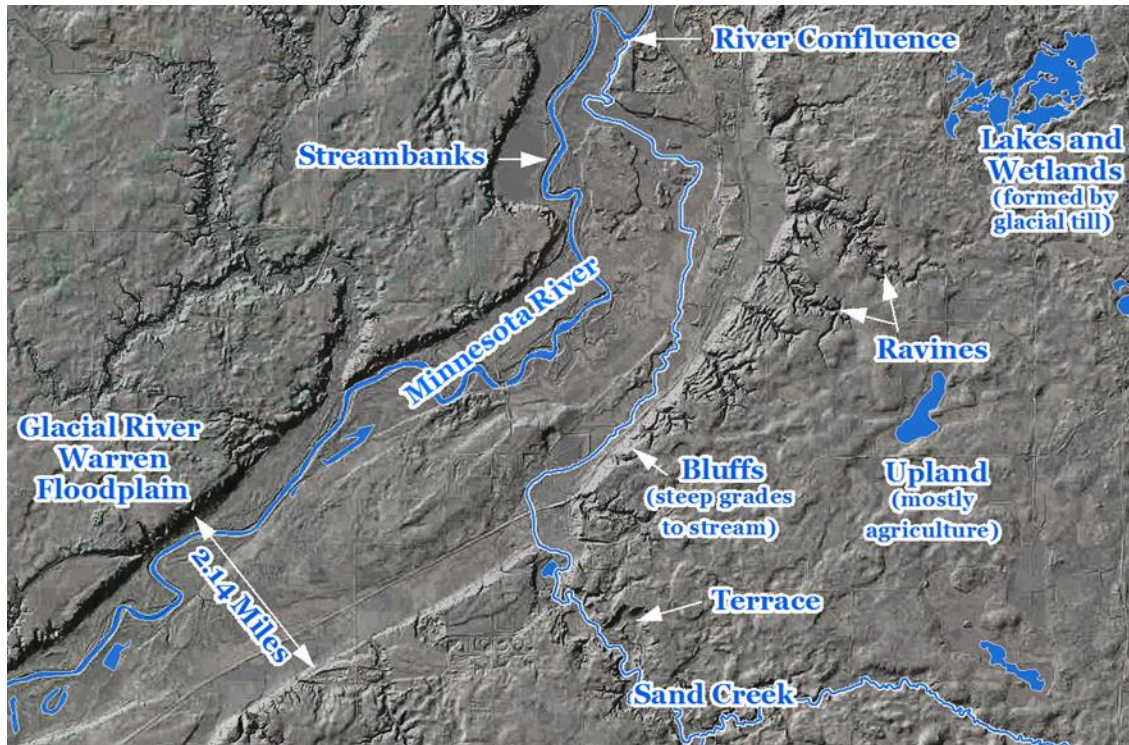


Figure 1.1. Key Topographic features in the Minnesota River Valley

Bluff Features.

Centuries of erosive actions by the Minnesota River and its tributaries have left unique bluff features across areas of Scott County, most notably in the southwest corner of the County in Blakeley Township. These bluff areas offer unique views of the County and contain the majority of the natural

communities and rare species identified in the Minnesota Department of Natural Resources Natural Heritage Information System Database, listed in Table 1.5. on pages 1-19 to 1-20. These bluff features present many challenges for stormwater management and erosion control because of their steep grades (like the



80 foot gradient in the picture to the right) and the presence of escarpments and ravines.

SECTION 1 – LAND & WATER RESOURCE INVENTORY

Geology

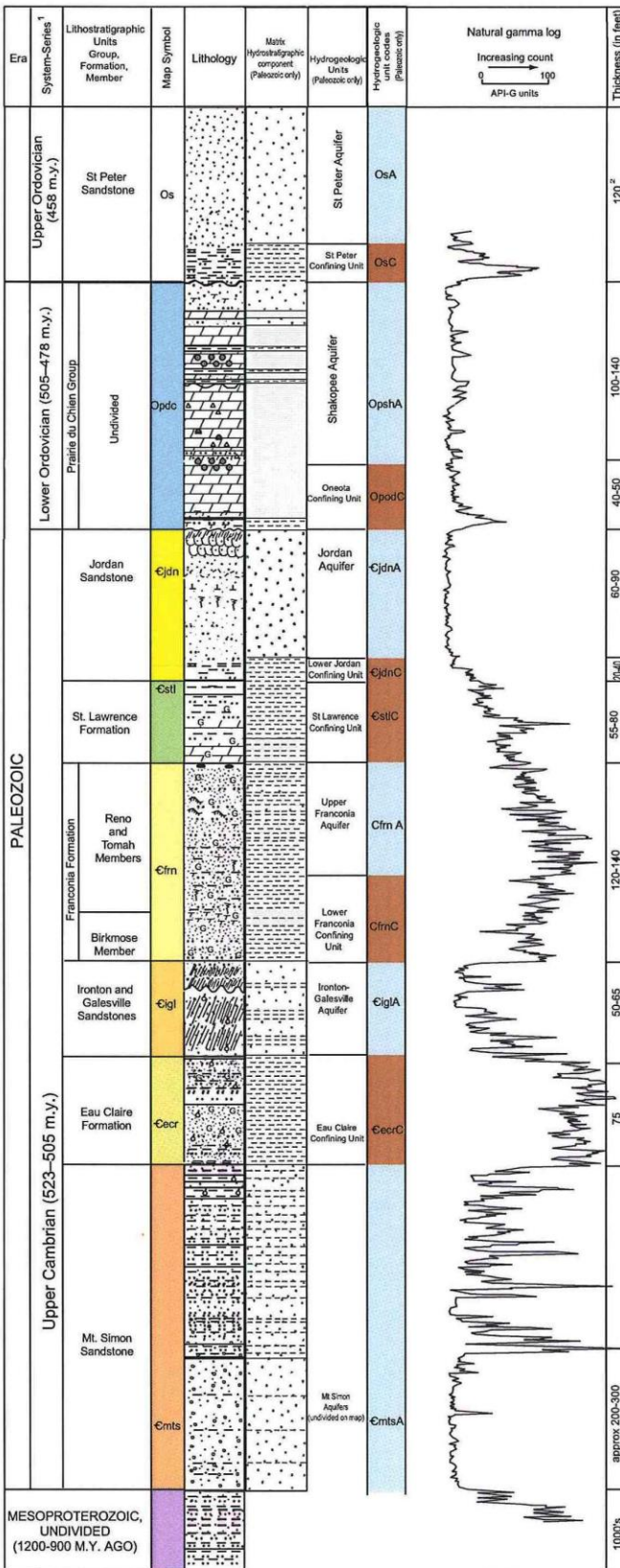
The groundwater county residents' use is contained in Scott County's rocks, soils, and minerals. That is, the geology of the SWMO forms the entry points, exit points, and pathways of water in the groundwater system. The purpose of this section is to convey a general understanding of the SWMO geology.

Like other portions of the metropolitan area, the SWMO has three basic geologic units, which are as follows from top to bottom:

- 1) Glacial deposits.
- 2) Bedrock formed in shallow marine sediments deposited between 480 million and 950 million years ago.
- 3) Bedrock of volcanic or metamorphic origin.

Figure 1.2. (on the next page) shows the geologic layers underlying the SWMO. The origin of the geologic material, how it was deposited, and how it was subsequently re-worked, determine the properties of these three geologic units. The material within the three units may be thought of as water bearing (porous and permeable enough to contain and transmit water in pumpable quantities) or as confining (not permeable enough). Porosity can occur as fractures in solid material, as sand and gravel deposits, or as a combination of the two.

SECTION 1 – LAND & WATER RESOURCE INVENTORY



Source: Geologic Atlas of Scott County Map C-1, University of Minnesota, St. Paul, MN 1982, N.H. Balaban & Peter L. McSwiggen

Lithology Key

- Limestone
- Dolostone
- Sandy
- Sandstone Very fine- to fine-grained
- Sandstone Fine- to medium-grained
- Sandstone Medium- to coarse-grained
- Shaly
- Siltstone
- Shale

Key to Hydrostratigraphic Matrix

- Coarse clastic
- Fine clastic
- Carbonate

- Cavities (commonly filled with coarse calcite)
- Chert
- Oolites
- Glauconite
- Algal mats
- Algal domes; stromatolites
- Fossiliferous; fossils (symbols not used in limestone or dolostone units)
- Worm bored
- Pebbles (gravel in unconsolidated units)
- Flat-pebble conglomerate
- Cross-bedded (festoon)
- Cross-bedded (planar to tangential)
- Ripple cross-laminations
- Dolomitic
- Calcareous
- Contact marks a major erosional surface
- Facies change

Hydrogeologic designations

- OsA-St Peter Aquifer
- OsC -St Peter Confining Unit
- OpshA-Shakopee Aquifer
- OpodC -Oneota Confining Unit
- CjdnA -Jordan Aquifer
- CjdnC-Lower Jordan Confining Unit
- CstC-St Lawrence Confining Unit
- CfrnA-Upper Franconia Aquifer
- CfrnC-Lower Franconia Confining Unit
- CiglA-Iron-ton-Galesville Aquifer
- CecrC-Eau Claire Confining Unit
- EmtsA-Mt Simon Aquifer, undivided

FIGURE 2

Figure 1.2 General SWMO Geology

SECTION 1 – LAND & WATER RESOURCE INVENTORY

Surficial Geology. Approximately 2 million years ago, the topography of the SWMO was formed in sedimentary rock, consisting of broad, rolling plateaus divided by sharply cut valleys. An artist's sketch of that pre-glacial landscape is shown in the Scott County Geologic Atlas series available on the University of Minnesota's data conservancy webpage (Setterholm, D.R., 2006). Today, that landscape is buried and referred to, informally, as bedrock. It is covered by material deposited by glaciers, known collectively as glacial drift. Approximately 10,000 years ago, the Des Moines Lobe of the glacial ice retreated, leaving drift many feet thick. As it retreated, Lake Agassiz was formed from the ice melt. After Lake Agassiz overtopped the southernmost moraine (southern extent of the Des Moines glacier), the flowing water formed the Glacial River Warren and carved out the Minnesota River Valley.

Bedrock Geology. Beneath the glacial deposits lie a series of layered sedimentary rocks. The youngest layers are on top and the oldest at the bottom. Beneath the sedimentary rock is volcanic (igneous) rock. The County Geologic Atlas shows a stratigraphic section that describes the different layers of bedrock that are found beneath the glacial drift. Locations of these bedrock formations in Scott County can be viewed in Scott County's online interactive mapping application "ScottGIS3," hereafter referred to as "SG3" (Scott County, 2017b). The dominant feature of the bedrock geology is the subsurface valleys that crisscross the county.

Soil

General Soils. Soil associations represent several soil series having similar characteristics on a countywide basis. In 1980, a revised soil association map for Scott County was published (USDA, 1980) delineating 10 soil associations. Several changes have been made from the 1959 soil association map due to more recent investigations and interpretations.

General characteristics of the ten soil associations are shown in Table 1.1. A soil series is a more detailed soil classification than a soil association. Individual soil series for Scott County were published in 1959 (USDA 1959) as part of the Scott County Soil Survey.

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Table 1.1. Soil Associations in Scott County (USDA, 1980)

CORDOVA (WEBSTER)-LESTER-CLARION:	COPASTON (COPAS)-FAXON:
Fertility, organic matter content, and available water capacity are high. The main concern of management is improvement of drainage and erosion control.	Shallow soil limits rooting depth. Fertility is low and organic matter content is high. Available water capacity is low for Copaston and the water table is high in Faxon.
LESTER-CORDOVA (WEBSTER)-HAYDEN:	ALLUVIAL LAND-DORCHESTER:
Fertility and organic matter content are moderate to high. The available water capacity is high. The main concerns of crop management are control of erosion and drainage of wet areas.	Wetness and flooding cause this association to be high risk for cultivated crops. Main concerns of management are wetness, flooding, and sedimentation.
HAYDEN-LESTER-CARON:	HEYDER (HAYDEN)-KINGSLEY-MAHTOMEDI (SCANDIA):
Fertility and organic matter content are high to low. The available water capacity is high. The main concerns of management are control of erosion on slopes and drainage of low areas.	Organic matter content is low on all upland soils. The main concerns of management are control of erosion and adaptation to droughtiness.
HAYDEN-LESTER-TERRIL:	ESTHERVILLE-BURNSVILLE-LESTER:
Organic matter content and fertility are low. Available water capacity is high. Main concerns of management are control of sheet and gully erosion.	Organic matter content is medium to low. Groundwater pollution is a severe hazard on the Estherville and Burnsville soils where onsite sewage systems are used.
HUBBARD-DAKOTA-ESTHERVILLE:	ERIN-KILKENNY-CARON:
Fertility, organic matter content, and available water capacity are medium to low. Main concerns of management are droughtiness, control of wind erosion, and improving fertility.	Fertility and organic matter content are medium to high. The available water capacity is high. The main concerns of crop management are control of erosion, drainage of wet areas, and maintenance of surface tilth.

Prime Farmland. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing crops. The soil has acceptable acidity or alkalinity, acceptable salt and sodium content and few or no rocks. The farmlands are not excessively erodible or saturated with water for long periods. Examples of soils that qualify are Clarion loam, Webster clay loam, and Tama silty clay loam. In Scott County, there is a total of 110,000 acres of prime farmland, which represents 46 percent of the County's acreage.

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Hydric Soils. The location and extent of hydric soils in Scott County and the SWMO is shown online in SG3 (Scott County, 2017b). Hydric soils are soils that formed under conditions of saturation, flooding, or ponding long enough to develop anaerobic conditions in the upper part of the soil profile. They are used as one component (out of three) in identifying wetland areas. Hydric soils have specific indicators that are used for identification in the field, although many soil series are designated as hydric.

Cropland Erosion: Highly Erodible Lands. Several agricultural areas within Scott County are considered to be highly erodible, according to the Scott County Soil Conservation Survey (SCS) (USDA 1959), view SG3 online (Scott County, 2017b) for location of these areas.

Precipitation

The hydrologic cycle describes the movement of water through the environment. Beginning with precipitation as the first of four major phases of the hydrologic cycle, the other phases are infiltration, evaporation, and transpiration. This section provides information that may be useful in responding to questions about rainfall and runoff.

Annual Precipitation. The Minnesota State Climatology Office provides precipitation grids made up of regularly-spaced grid nodes whose values were calculated using data interpolated from Minnesota's large precipitation data base. The graph on the next page summarizes the monthly rainfall for Spring Lake Township in central Scott County from this database for the period from January 1891 to October 2017 (DNR, 2017a). The average annual precipitation for this time period is about 28.52 inches, with about 18.60 inches falling in the growing season from May through September. The average annual precipitation for the year 2016 alone was 37.06 inches, which is in the 90th percentile for this dataset.

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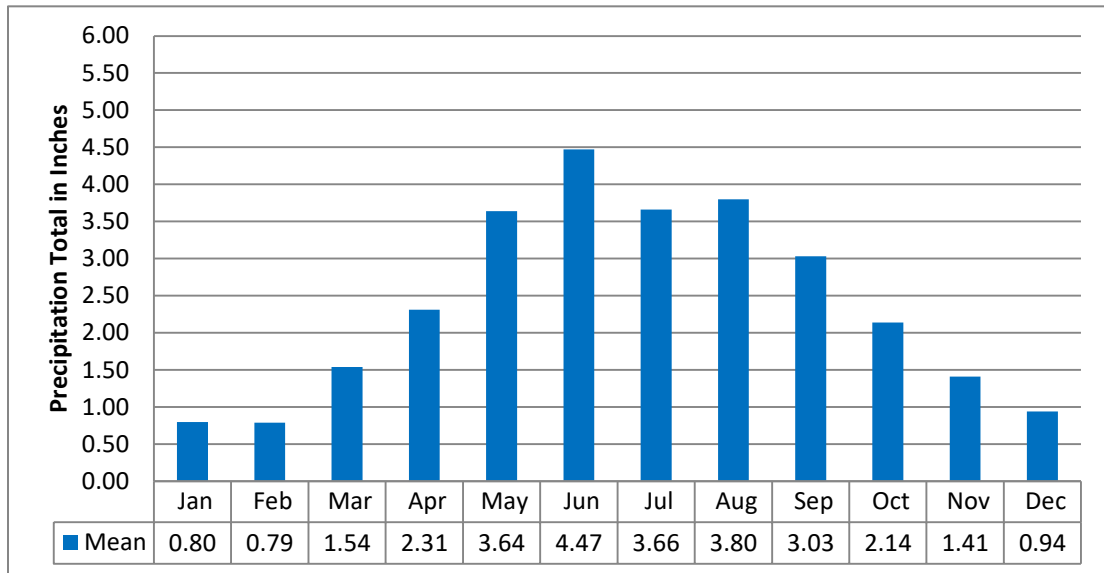


Figure 1.3. Precipitation Grid Data from Spring Lake (T114N R22W S30) Mean values from January 1891 to October 2017

Changing Rainfall Amounts. In general, rainfall amounts in Scott County are increasing and this is supported by the Minnesota State Climatology Annual Precipitation Rank Maps, which are available for viewing on their website (MDNR, 2017b). These ranking maps depict annual precipitation totals as they rank when compared to annual totals over the modern record. The values are shown as percentiles. A ranking near zero suggests the year was drier than any other during the time period. A ranking near 100 indicates the year was wetter than any found on record, while a ranking near 50 denotes the median record found, or central tendency. Since 1990, the annual precipitation in Scott County has mostly ranked in the 60th percentile or greater for annual rainfall (19 of 27 years). From 2014 through 2016, Scott County's annual precipitation was ranked in the 80-95th percentile (see maps in Figure 1.4, taken from MDNR, 2017b).

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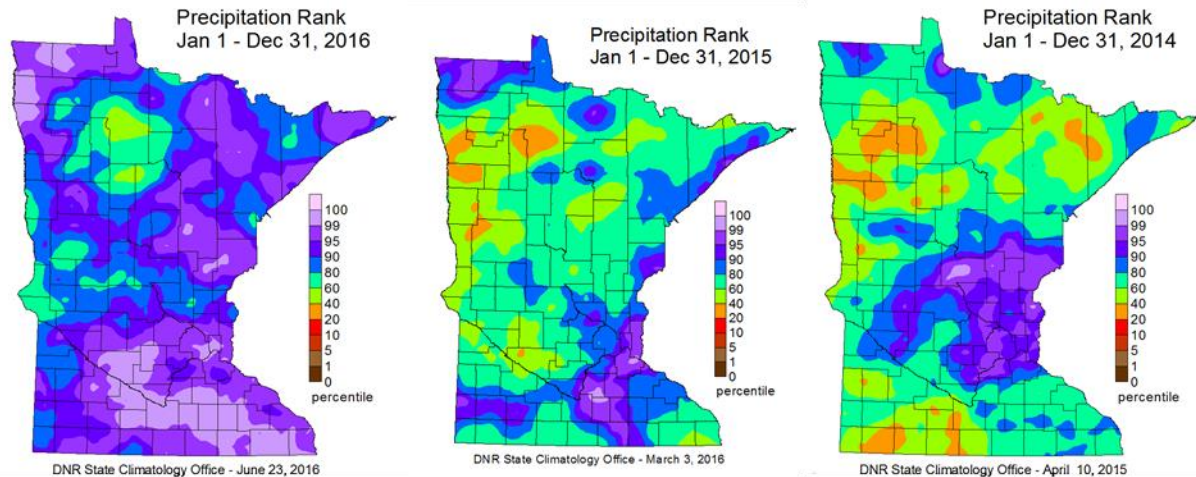


Figure 1.4. Annual Precipitation Rankings for 2016, 2015, and 2014 (DNR, 2017b)

Storm Intensity. Also of note, a study completed in 2017 by the University of Utah for SWMO suggests that storm intensities in Scott County have also increased (Belmont et al, 2017). As demonstrated in the figure below, heavy rainfall has increased significantly in the last four years.

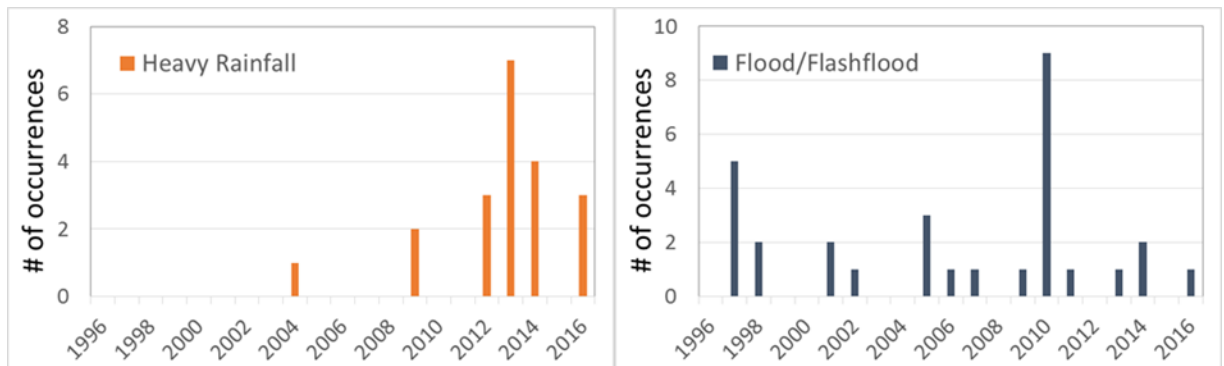


Figure 1.5. Histograms of NWS Severe Weather notifications for Heavy Rainfall (left) and Flood or Flash Flood (right) (Belmont et al, 2017).

Groundwater resources

Major Aquifers. Most residents of the SWMO rely on groundwater for their drinking water. The exceptions are the residents of the City of Savage, who receive a portion of their water from surface water sources in the City of Burnsville. There are four major aquifers in Scott County. They are, from newest to oldest, the surficial Glacial Drift Aquifer, the Prairie du Chien-Jordan Aquifer, the Franconia Ironston Galesville Aquifer,

SECTION 1 – LAND & WATER RESOURCE INVENTORY

and the Mt. Simon-Hinckley-Fond du Lac Aquifer. Please see Figure 1.2. on page 1-5 for a diagram of these aquifers.

Groundwater and Surface Water Connections

Flow Direction. Groundwater flow direction was determined from static water levels that were recorded when wells were installed. Groundwater flows downhill, or, down a gradient, just as surface water does. Therefore, groundwater flows from areas of high static water levels to areas of low static water levels. The general direction of groundwater movement in Scott County is in the northeast and northwest direction towards the Minnesota River.

Geologic Sensitivity. Surface water and groundwater are part of a hydrologic single system. If not sited or maintained properly, surface water management structures, such as infiltration basins, holding ponds, reclaimed gravel pits, or wetland replacements, may adversely affect groundwater quality. The new geologic atlas does not include a groundwater susceptibility map. However, SG3 includes a layer created from the previous atlas (Geologic Atlas of Scott County Map C-1, University of Minnesota, St. Paul, MN 1982, N.H. Balaban & Peter L. McSwiggen), which illustrates where bedrock formations are susceptible to contamination in Scott County. In general, these areas are in the northern and northwestern portions of the county where the bedrock is at a shallow depth, and where there are surficial materials with fast to very fast infiltration rates (Lusardi, et al, 2006; Plate 6).

Surface water resources (lakes, streams, wetlands, public waters, public ditches)

Surface water resources are described for public waters, their physical characteristics, flooding potential and water quality.

Public Waters. The public waters of Scott County and the SWMO are shown on Map 2. The DNR designates certain water resources as public waters to include those lakes, wetlands, and watercourses over which the DNR has regulatory jurisdiction. See Terms and Acronyms for the full definition.

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Physical Characteristics of Public Waters. Information furnished by the Minnesota DNR includes, water body size, ordinary high water level (OHW), surface area (acres) and maximum depth (ft) for most protected waters and wetlands (Table 1.2.).

Table 1.2. Lake Physical Characteristics within the SWMO (MDNR, 2017)

Lake	Surface Area (acres)	Max Depth (ft)	Ordinary Water Level (OHW)	Subwatershed	Management Class
Cedar 70-0091	793	13	943.4 ft	Sand Creek	Recreational Development
Cleary 70-0022	145	9	937.8 ft	Credit River	Natural Environment
Cynthia 70-0052	196	10	NA	Porter Creek	Natural Environment
Geis 70-110	133	3	NA	Unnamed Tributary	Natural Environment
Hanrehan 70-0019	67	7	881.7 ft	Credit River	Natural Environment
Hickey 70-0090	NA	NA	NA	Sand Creek	Natural Environment
Kane 70-0024	NA	NA	NA	Porter Creek	Natural Environment
Lennon 70-0035	NA	NA	NA	Porter Creek	Natural Environment
McMahon 70-0050	162	14	965.2 ft	Porter Creek	Natural Environment
Murphy 70-0010	45	15	NA	Credit River	Natural Environment
O'Dowd 70-0095	300	22	945.2 ft	Minnesota River	Recreational Development
Pleasant 70-0098	300	5	902.6 ft	Sand Creek	Natural Environment
St. Catherine 70-0029	NA	NA	943.1 ft	Porter Creek	Natural Environment
Schneider 70-0012002	36	9	944.7 ft	Minnesota River	Recreational Development
Thole 70-0120	105	12	944.7 ft	Minnesota River	Recreational Development

Public Ditch Systems, Dams, and Control Structures. Public ditch systems include ditch systems, tile systems, judicial ditches, county ditches, and joint county ditches

SECTION 1 – LAND & WATER RESOURCE INVENTORY

provided for under MN Statutes, Chapter 103E. There are also a number of other ditches created for roadway drainage, private ditches, or ditches created as part of a municipal stormwater conveyance system. Map 2 shows public ditches in the County. As of 2017, the County is the ditch authority for most of the ditches in the county established under MN Statutes Chapter 103 E. The exception is a couple of ditches in the southwest portion of the SWMO where there is a joint ditch board between Scott and Le Sueur Counties. The DNR Division of Waters maintains a dam inventory list for all of Minnesota. Table 1.3. lists the dams in Scott County listed in this inventory.

Table 1.3. SWMO Dam Inventory (taken from DNR-Waters "MN Inventory of Dams", 08/03/2017)

Dam Name	National ID	River	Owner	Inspection Date	Condition Assessment
Ames	MN01437	Sand Creek	Ames, Richard	6/16/2010	Satisfactory
Cedar Lake Diversion	MN01228	Sand Creek-TR	MDNR	11/3/2015	Not Rated
Cedar Lake Inlet	MN01229	Sand Creek	MDNR	11/3/2015	Satisfactory
Cedar Lake Outlet	MN00399	Sand Creek-TR	MDNR	11/3/2015	Fair
Cynthia Lake	MN01230	Porter Creek	MDNR	11/5/2015	Poor
DeBoom	MN01522	Minnesota River - TR		6/16/2010	Not Rated
Dvorak F Pond	MN00278	Porter Creek-TR	Dvorak, Anton	3/28/2016	Satisfactory
Hilgenberg Pond	MN00838	Minnesota River-TR	Hilgenberg, Eric	8/22/2013	Satisfactory
Jordan Falls	MN01399	Sand Creek	City of Jordan		Not Rated
Jordan Mill Pond	MN00535	Sand Creek	City of Jordan	8/22/2013	Satisfactory
Pleasant Lake Diversion	MN01231	Sand Creek	MDNR	11/3/2015	Not Rated
Ruehlings Pond	MN00283	Minnesota River-TR	Ruehling, Earl	11/5/2015	Not Rated
Theis-Bendzick Pond	MN00282	Sand Creek-TR		6/24/2008	Satisfactory
Vallez Fish Pond	MN00279	Sand Creek-TR	Vallez, James	11/5/2015	Satisfactory

Water-based recreation areas

Scott County offers numerous opportunities for outdoor recreation. Parks, recreation areas, and wildlife refuges (Map 3) abound throughout the County. Many of the lakes are accessible to boats (Table 1.4.), increasing the already abundant recreation choices for residents of this area.

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Table 1.4. Lake Accesses and Piers within SWMO

Location	Access			Recreation			Parking Spaces	Park Permit	Hours	Operating Agency	Phone Number
	Concrete	Earth	Carry-in	Shore Fishing	Pier Fishing	Swimming					
Cedar Lake: East Access	✓			✓			4		24 hours	MDNR	651-772-7935
Cedar Lake: North West Access	✓			✓			30		24 hours	MDNR	651-772-7935
Cedar Lake Farm Regional Park			✓		✓	✓	10	✓	5AM - 10PM	Three Rivers Park District & Scott County Parks	763-694-7777
Cleary Lake Regional Park		✓	✓		✓	✓	10	✓	5AM - 10PM	Three Rivers Park District & Scott County Parks	763-694-7777
McMahon Lake	✓			✓			9		24 hours	MDNR	651-772-7935
MN River: Thompson Ferry Access	✓			✓			13		24 hours	MDNR	651-259-5774
MN River: Belle Plaine Access	✓			✓			15		24 hours	MDNR	651-259-5774
Murphy Lake	✓			✓			9	✓	5AM - 10PM	Three Rivers Park District & Scott County Parks	763-694-7777
O'Dowd Lake	✓			✓			13		24 hours	MDNR	651-772-7935
O'Dowd Lake Park					✓		15		6AM - 10PM	City of Shakopee	952-233-9500
Pleasant Lake		✓		✓			4		24 hours	MDNR	651-772-7935
Thole/Schneider Lakes	✓				✓		14		24 hours	MDNR	651-772-7935

Data Sources: Minnesota Department of Natural Resources, Three Rivers Park District, and the City of Shakopee.

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BIOLOGICAL ENVIRONMENT

Ecoregions

Ecological land classifications are used to identify, characterize, and map increasingly smaller land areas with similar ecological features. The classification system uses a variety of data including biotic and environmental factors such as climate, geology, topography, soils, hydrology, and vegetation. The mapping of these areas enables environmental managers to look for ecological patterns, which can inform management decisions. For example, identification of rare plant communities in the county can inform Scott County staff where to draw a Natural Areas Corridor boundary (see the Natural Areas Corridors for more information).

Scott County is in the Eastern Broadleaf Forest Province, the Minnesota and Northeast Iowa Morainal Section, and the Big Woods Subsection. The Big Woods subsection is characterized by mostly deciduous forest—oak woodland and maple-basswood forest were the most common. Wetlands, swamps, and lakes are common and scattered throughout the SWMO because of undeveloped drainages, resulting in lakes without an inlet or outlet, and because of landforms. For more information on the various plant communities in Scott County, please view the Minnesota Land Use Classification data online on SG3 (Scott County, 2017b) or refer to the MDNR Hennepin, Carver, and Scott County Biological Survey (MDNR, 1998).

Critical Habitat & Scenic Areas

Minnesota Valley National Wildlife Refuge. Stretching almost 70 miles along the Minnesota River from Bloomington to Henderson, this refuge is part of a corridor of land and water protecting unique habitats and wildlife. Managed by the U.S. Fish and Wildlife Service (USFWS), critical wildlife habitats within the refuge include wetlands, swamps, floodplain forests, oak savannas, and tallgrass prairies. The refuge corridor is an ideal place for migratory waterfowl and fish, river otters, prairie skinks, and bald eagles to thrive. It is composed of multiple units, which offer different recreational opportunities and include different critical habitats. The units within the SWMO include the Louisville Swamp and the Ney Wildlife Management Area, both described on the next page:

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Louisville Swamp. This 2,600 acres large unit is a unique mix of marsh, lakes, streams, oak savannah, restored prairie, rock formations, bottomland forest, upland forest, and stone farmsteads. It is located west of Highway 169 spanning from the Minnesota Renaissance Festival to just north of Jordan. Thirteen miles of trails cross through Louisville Swamp, and are very popular among hikers in the warmer months and cross-country skiers in the winter.

Ney Wildlife Management Area. This wildlife management area is 563 acres large and located right next to the scenic Minnesota River Valley, and adjacent to the Blakeley Bluffs Future Park Reserve (read more about Blakeley on page 1-17). It has a mixture of prairie, deciduous forest, oak savannah, a wetland restoration, and dramatic topographic changes.

Minnesota River Valley State Trail. Land set aside in this trail system connects various portions of the Minnesota River Valley Wildlife Refuge, protecting critical habitats, wildlife, and offering recreationalists the opportunity to enjoy them. Segments of this trail system can be used for biking, horseback riding, snowmobiling, and hiking. Habitats protected include floodplain forests, blufftop oak savannas, wetlands, and fens. To view the various segments of this trail system, and take a virtual tour, please look at MDNR's virtual trail tour (MDNR, 2017d). Within the SWMO are the following units: Nyssen's Lake, Gifford's Lake, the Thompson Ferry, and Lawrence.

Lawrence Unit. The Lawrence Unit offers horseback riding, an equestrian campground, impressive wildlife viewing areas, and the historic S. B. Strait house. Popular sites to visit within this unit include Horseshoe Lake, Beason Lake, and the equestrian trails and campground.

The Thompson Ferry Unit. This unit offers a picnic site, water access to the Minnesota River, and beautiful views of the river from sand dunes and natural floodplain habitat.

Hill's Thistle, Cirsium Hillii, Prairie Site in Belle Plaine. A dry prairie remnant around the City of Belle Plaine provides the ideal habitat for Hills Thistle, an endangered plant

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species. These dry prairies were once expansive around the City of Belle Plaine, but have since been developed.

Murphy-Hanrehan Park. The Murphy-Hanrehan Park Reserve and adjacent Cam Ram City Park are significant for their natural characteristics. The Natural Heritage Information System (NHIS) provides information on Minnesota's rare plants, animals, native plant communities, and other rare features. The NHIS is updated as new information becomes available, and shows multiple endangered animals and plants are documented in this park (see Map 3). The most naturally diverse area of the park is the large oak forest that extends southeastward from Hanrehan Lake to the eastern boundary of the park, north of Orchard Lake.

Blakeley Bluffs Future Park Reserve. Blakeley Bluffs is a future park reserve planned in southwestern Scott County along the Minnesota River bluffs. It will be approximately 2,440 acres large, featuring ecologically diverse, large and continuous segments of forest with dramatic topographic changes. The acquisition of lands is expected to take several decades.

Doyle-Kennefick Future Regional Park. Doyle-Kennefick Regional Park is planned to be 1,139 acres large; currently 490 acres have been purchased, with the rest planned to be acquired in phases. The park will be located between St. Catherine and Lennon Lakes. Doyle-Kennefick is highly diverse and consists of a mix of rolling oak woodlands, degraded oak savannah, a large regionally significant wetland and open water system, cropland, pasture land, farmstead, and second growth deciduous forest.

Natural Areas Corridors

In response to the 2030 Comprehensive Plan Vision, a process began in 2006 to identify Natural Area Corridors within Scott County. A Natural Area Corridor is defined as a linear connection of natural features which may include: areas with known sensitive species or communities, unique natural communities, and high and medium quality natural communities. The intent of designing the Natural Areas Corridors was to guide development-related decisions in an effort to protect high and medium priority natural areas. It was also intended to identify priority areas

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for management of riparian and wildlife corridors for use by Watershed Organizations in the County. The County and its partners also believe the Natural Area Corridors approach is a more cost-effective and sustainable means of managing Water Resources and associated infrastructure in the long-term, as compared to the traditional ways of developing and managing storm water. It embraces green infrastructure that leaves the floodplain to holding flood waters, and keeps homes and structures out of harm's way. The Natural Areas Corridors can be viewed online on SG3 (Scott County, 2017b) and more information is available on Scott County's website (Scott County, 2017a).

Fish & Wildlife Habitat

Additional habitat is preserved in regional parks within the SWMO. There are three Regional parks within the unincorporated areas of Scott County: Murphy-Hanrehan Park Reserve, Cedar Lake Farm Regional Park, and Cleary Lake Regional Park, which are managed by the Three Rivers Park District. Murphy-Hanrehan Park Reserve is a 2,536-acre facility located in the northeast part of the County. The Credit River flows through the western portion of the park reserve. There are three lakes within the park, the largest being Hanrehan Lake. Cedar Lake Farm Regional Park is 254 acres on the southwest shore of Cedar Lake. When the park is completed, it will have 4,300 feet of shoreline, as well as restored wetlands and high-quality Maple-Basswood forest. The county has acquired all but 22.49 acres of the planned park area, and the southern lakeshore is open to the public. Cleary Lake Regional Park is a 1,048-acre natural area also located in the northeast part of the County. The central feature of the park is the 145-acre Cleary Lake. The County is also in the process of acquiring property for the Doyle-Kennefick Regional Park and Blakeley Bluffs Park Reserve. Both of the future parks are not currently open to the public. Blakeley Bluffs Park Reserve will be adjacent to the Minnesota River Valley National and State Wildlife Refuges and thus will provide contiguous habitat protection along the Minnesota River. In addition to the Regional Parks, numerous other areas in the County provide recreation opportunities (Map 3).

The MDNR – Metro Wildlife Corridors identified significant portions of Scott County as having potential to become part of a regional Greenways system. The primary purposes of the regional Greenways system are to conserve native landscapes, ecosystems, and their species and to link

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parks, open spaces, wildlife corridors and recreational trails. By doing this, the ecological resources, the outdoor recreation amenities, and the open-space character of the Twin Cities Metropolitan Region are preserved and enhanced. These areas are viewable on Minnesota DNR's website (DNR, 2017c).

Rare or Endangered species

There are 37 endangered, threatened, or species of concern in the Scott Watershed Management Organization watershed. The majority of these species are found along the Minnesota River or in Murphy-Hanrehan Park Preserve; see Map 3 for those locations. Table 1.5. lists the rare plant and animal species by categories of endangered, species of concern, or threatened.

Table 1.5. Rare or Endangered Species (MDNR, 2017)

Plants		
	Scientific Name	Common Name
E.	<i>Eleocharis wolfii</i>	Wolf's Spike-rush
	<i>Talinum rugospermum</i>	Rough-seeded Fameflower
Species of Concern	<i>Bacopa rotundifolia</i>	Water-hyssop
	<i>Baptisia alba</i>	White Wild Indigo
	<i>Cirsium hillii</i>	Hill's Thistle
	<i>Cypripedium candidum</i>	Small White Lady's-slipper
	<i>Desmodium cuspidatum</i> var. <i>longifolium</i>	Big Tick-trefoil
	<i>Eryngium yuccifolium</i>	Rattlesnake-master
	<i>Oenothera rhombipetala</i>	Rhombic-petaled Evening Primrose
	<i>Panax quinquefolius</i>	American Ginseng
T.	<i>Besseyia bullii</i>	Kitten-tails
Animals		
	Scientific Name	Common Name
Endangered	<i>Elliptio crassidens</i>	Elephant-ear
	<i>Fusconaia ebena</i>	Ebonysell
	<i>Quadrula fragosa</i>	Winged Mapleleaf
	<i>Quadrula nodulata</i>	Wartyback
	<i>Ammodramus henslowii</i>	Henslow's Sparrow

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Table 1.5. Rare or Endangered Species (MDNR, 2017)

Animals		
	Scientific Name	Common Name
Species of Concern	<i>Cicindela macra macra</i>	Sandy Stream Tiger Beetle
	<i>Elliptio dilatata</i>	Spike
	<i>Lasmigona costata</i>	Fluted-shell
	<i>Ligumia recta</i>	Black Sandshell
	<i>Obovaria olivaria</i>	Hickorynut
	<i>Speyeria idalia</i>	Regal Fritillary
	<i>Apalone mutica</i>	Smooth Softshell
	<i>Buteo lineatus</i>	Red-shouldered Hawk
	<i>Cycleptus elongatus</i>	Blue Sucker
	<i>Dendroica cerulea</i>	Cerulean Warbler
	<i>Empidonax virescens</i>	Acadian Flycatcher
	<i>Haliaeetus leucocephalus</i>	Bald Eagle
	<i>Pituophis catenifer</i>	Gopher Snake
	<i>Wilsonia citrina</i>	Hooded Warbler
Threatened	<i>Actinonaias ligamentina</i>	Mucket
	<i>Cicindela lepida</i>	Ghost Tiger Beetle
	<i>Pleurobema coccineum</i>	Round Pigtoe
	<i>Quadrula metanevra</i>	Monkeyface
	<i>Tritogonia verrucosa</i>	Pistolgrip
	<i>Emydoidea blandingii</i>	Blanding's Turtle
	<i>Lanius ludovicianus</i>	Loggerhead Shrike

Invasive species

The most prevalent aquatic invasive species in the watershed are Curly-leaf pondweed (*Potamogeton crispus*), Eurasian watermilfoil (*Myriophyllum spicatum*), an invasive cattail hybrid (*Typha X glauca*), Common Carp (*Cyprinus carpio*), and Zebra Mussels (*Dreissena polymorpha*). Table 1.6 summarizes the extent of these problem species.

Table 1.6. Aquatic Invasive Species in the SWMO (MDNR, 2017)

Water Body Name	Dow Number	Aquatic Invasive Species
McColl Lake	70001700	Eurasian water-milfoil
McMahon Lake	70005000	Eurasian water-milfoil
O'Dowd Lake	70009500	Eurasian water-milfoil

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Table 1.6. Aquatic Invasive Species in the SWMO (MDNR, 2017)

Water Body Name	Dow Number	Aquatic Invasive Species
Thole Lake	70012001	Eurasian water-milfoil
Minnesota River	All segments	Zebra Mussels

Note: Curly-leaf pondweed (*Potamogeton crispus*) and the invasive cattail hybrid (*Typha X glauca*) are found in most lakes and wetlands in the SWMO area.

In the 2009 SMO Watershed Plan, the SWMO identified a strategy to control Curly-leaf pondweed. To fulfill this strategy, the SWMO partnered with the MDNR and lake associations to treat the invasive plant on Cedar Lake, McMahon Lake, O'Dowd Lake and Thole Lake. Results of annual aquatic plant surveys for each lake are available in the SWMO Annual Reports, available on Scott County's website (SWMO, 2017a). Cedar Lake has the longest consecutive annual Curly-leaf pondweed treatments and vegetation sampling: in 2016, there were seven native aquatic plant species, whereas in 2007 there were only two.

AQUATIC ENVIRONMENT *(water quality & quantity)*

This section provides a summary of surface and groundwater quality, and quantity conditions within the SWMO. Surface water quality conditions for upstream areas of the Sand Creek watershed are also briefly summarized. While not part of the SWMO, conditions in these upstream areas affect downstream areas located within the SWMO. The SWMO partners with upstream SWCDs (Le Sueur and Rice) to implement an overall comprehensive strategy for the watershed.

There is a significant amount of data available regarding surface and groundwater in the SWMO, and the Sand Creek watershed. It is not possible to present all of the data in this Plan. Therefore, summary information is presented with links provided to reports where more detailed information can be found. The presentation of summary information is organized by surface water and groundwater.

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Surface Water

There are numerous surface waters in the SWMO as shown on Map 2. The following provides a summary of monitoring programs and environmental data collection efforts that have or are taking place in the SWMO, which is followed by a summary of the conditions of surface waters.

Monitoring Programs and Information. There are seven data collection and assessment efforts conducted by various entities that the SWMO uses to acquire surface water quality and quantity data. They include:

- SWMO stream monitoring
- Metropolitan Council Environmental Services (MCES) monitoring of Sand Creek at Jordan, and Credit River in Savage
- Citizen-Assisted Lake Monitoring Program (CAMP) by the MCES
- MPCA Watershed Monitoring
- Aquatic plant surveys by the MDNR and SWMO for Cedar, McMahon (Carl's), O'Dowd, and Thole Lakes
- Scott SWCD Blakeley Bluff Tributaries 2011-2012 SWAG monitoring project
- Special inventories and studies by the SWMO

In addition, Three Rivers Parks District monitors Cleary Lake, and Lakes in the Murphy-Hanrehan Regional Park (i.e., Murphy and Hanrehan Lakes) for trophic state parameters. They also monitor for bacteria at swimming beaches in the parks during the recreation season. The USGS also operates a gage on the Minnesota River (https://waterdata.usgs.gov/mn/nwis/uv?site_no=05330000).

The following provides a brief description of the seven collection efforts used by the SWMO.

SWMO Stream Monitoring. Stream monitoring was initiated by the SWMO in 2005. It has focused on Sand Creek, Credit River, and Roberts Creek. When possible it included continuous stream stage/flow as well as water quality

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parameters. Samples are collected and analyzed for multiple parameters similar to the MCES stream monitoring effort including: total phosphorus (TP), nitrate (NO₃), nitrite (NO₂), total kjeldahl nitrogen (TKN), ammonia, 5-day biochemical oxygen demand (BOD), total suspended solids (TSS), volatile suspended solids (VSS), turbidity, bacteria (fecal coliform or more recently *E. coli*) and chlorophyll-a (Chl-a). Field collected parameters include: water temperature, conductivity, pH, field turbidity, transparency tube, and dissolved oxygen (DO). In 2005 and 2006, monitoring of Sand Creek and its tributaries also included total metals, total sulfides, total hardness, total alkalinity, and total organic carbon. Chlorides have also been analyzed as part of more recent monitoring efforts.

The geographic focus of the effort varies from year to year rotating between a focus on Credit River, Sand Creek, and Roberts Creek. The intent is to augment monitoring by the MCES with additional sites on the Credit River and Sand Creek so that the SWMO can diagnose source areas in addition to long-term trend analysis. Roberts Creek is monitored periodically by the SWMO for conditions assessment purposes.

Through this effort, multiple locations have been monitored on Sand Creek and its tributaries (i.e., Porter and Raven Creeks) in 2005, 2006, 2007, 2008, 2013, 2014, and 2015. Monitoring in 2007 and 2008 was very detailed including sites outside the SWMO in the upper watershed. This was completed as a Clean Water Partnership study jointly with the MPCA. Resulting data are housed in the MCES's database and was submitted to the MPCA for their inclusion in EQIS. The exception is continuous stage/flow data, which is retained by the SWMO.

Data from 2007 and 2008 was assessed and is presented in the Sand Creek Watershed TMDL and Impaired Waters Diagnostic Study completed by the SWMO in 2010, is and available on the Scott County website (SWMO, 2010).

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The 2013, 2014, and 2015 Sand Creek data were all provided to the MPCA for their use and consideration in the Lower Minnesota River Basin monitoring effort summarized on the next page.

Picha Creek (a tributary to Sand Creek) had limited monitoring completed in 2007 and 2008. More detailed monitoring was completed in 2015. The report presenting the 2015 monitoring for Picha Creek can be found on the Scott County website (SWCD, 2016a).

Detailed monitoring was completed at multiple sites on the Credit River in 2008 and 2009 as part of a turbidity Total Maximum Daily Load (TMDL) study supported by the MPCA. Over the course of the study, however, it became clear that the river no longer exceeded the turbidity standard, and the end product was changed to a Protection Plan. The resulting monitoring data was analyzed and presented in the Protection Plan, and is available on the Scott County website (Interfluve Inc., 2007).

Roberts Creek was monitored at one site by the SWMO in 2010 and again in 2016. Monitoring reports are available on the Scott County website (SWMO, 2017b).

MCES Monitoring of Sand Creek and Credit River. The MCES has been monitoring Sand Creek in the City of Jordan and the Credit River in the City of Savage since 1989/1990. Monitoring includes a number of parameters, continuous stage/flow, continuous turbidity for some years, and macro-invertebrates. Macro-invertebrates have been sampled in the Credit River since 2001, and in Sand Creek since 2002.

Data collected is housed by the MCES and is shared with the MPCA for assessment purposes, and can be retrieved from the MCES's Environmental Information Management System (EIMS) portal (MCES, 2017a). Detailed reports analyzing the data through 2012 are available for both the Credit River and Sand Creek (Metropolitan Council, 2017).

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Citizen Assisted Monitoring Program (CAMP) for Lakes. The CAMP program was initiated by the MCES in 1980. Volunteers collect samples and analysis is completed by the certified MCES laboratory. An annual lake monitoring report is published by the MCES (MCES, 2017b).

Parameters measured include TP, secchi disk transparency, and Chl-a. Volunteers also record their perceptions of recreational suitability.

Within the SWMO volunteers are in place for Cedar (two sites), McMahon, O'Dowd, and Thole Lakes. However, Thole Lake does not have as long a monitoring record as the others. The City of Shakopee sponsors the volunteer on O'Dowd Lake. The SWMO sponsors volunteers for the other lakes.

Clear Lake is monitored bi-weekly by Three Rivers Park District for nutrient analysis (total phosphorus, soluble reactive phosphorus, total nitrogen, chlorophyll-a) as well as water clarity, temperature, conductivity, dissolved oxygen and pH profiles at one meter intervals from surface to bottom.

Minnesota Pollution Control Agency Watershed Monitoring. The MPCA completed intensive watershed monitoring in the Lower Minnesota River Basin in 2014 with some follow-up monitoring completed in 2015. Numerous stream segments and lakes within the SWMO were included. Results are presented in the Lower Minnesota River Watershed Monitoring and Assessment Report (MPCA, 2017a) published by the MPCA June 2017.

As part of this effort monitoring of rivers and streams was completed near the outlet of each of three watershed scales, 8-HUC, aggregated 12-HUC, and 14-HUC. Sites were sampled for aquatic biota (fish and macro-invertebrates), water chemistry, and fish consumption contaminants. Lakes most heavily used for recreation (all those greater than 500 acres and at least 25% of lakes 100-499 acres) were monitored for water chemistry (trophic state parameters), and where applicable the fish community. In the SWMO, efforts were coordinated so that the MPCA and the SWMO were not duplicating efforts. The result was the

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collection of monitoring data at numerous sites in the SWMO, at a number of locations in the upper portions of the Sand Creek watershed, from lakes not typically monitored (St. Catherine's, Cynthia, Schneider, and Pleasant Lakes), and for water chemistry parameters and biota not typically done by the SWMO.

Aquatic Plant Surveys. The SWMO and the MDNR coordinate to complete aquatic plant surveys of major recreational lakes where the SWMO is involved in efforts to control curly-leaf pondweed, an aquatic invasive species. Efforts started in 2007 with both early and late growing season surveys on Cedar and McMahon Lakes. Since that time surveys have also been completed on O'Dowd and Thole Lakes. They are now completed annually on each lake where there is some form of organized treatment. Older surveys were summarized in reports and are available on the Scott County website (SWMO, 2017c). Results for more recent surveys (i.e., 2013 and newer) are presented in SWMO Annual Reports (SWMO, 2017a).

The Three Rivers Park District also surveys Cleary Lake annually in the spring and fall.

Scott SWCD Blakeley Bluff Tributaries 2011-2012 SWAG monitoring project. Ten small Minnesota River tributaries in Blakeley Township, St Lawrence Township, and City of Belle Plaine were monitored between 2011 and 2012 by Scott SWCD and seven local citizen volunteers. This project was part of a Surface Water Assessment Grant funded by the MPCA. A comprehensive suite of parameters were tested including TSS, TP, TKN, NO₂+NO₃, Ammonium N, Chl-a, and E. coli. Twenty-two samples were planned for each site over the two year period. However, intermittent flow prevented full sampling at seven of the ten sites. Of the seven streams with intermittent flow, total samples ranged from three to eighteen samples in the two year period. The other three sites had all scheduled samples collected. All data collected was provided to the MPCA.

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Special Studies. The SWMO and its partners have completed a number of special studies over the years. These studies are listed below along with the description of the information collected. All except the 2017 Cedar Lake Carp Population Study can be found online in SWMO's Technical Reports Archive (SWMO, 2017d.) The carp study is available in our Reports and Documents page on the SWMO website (Wein, Jordan et. al. 2017).

- Fluvial Geomorphic Assessments of Sand Creek and Credit River were completed in 2008. These assessments included an assessment of the setting and basic geomorphology of each watershed, and field data collection for the assessment of stability in terms of aggregation and degradation by channel reach. The Sand Creek assessment also included its tributaries (i.e., Porter, Raven and Picha Creeks), and evaluation of stream habitat quality (SWMO, 2017d).
- TMDL studies were completed to address excessive nutrients for Cedar and McMahon Lakes in 2011, with implementation plans completed in 2012 (SWMO, 2017d).
- A carp population study of Cedar Lake, and Management Strategy was completed in 2017 (Wein, Jordan et. al. 2017).
- In 2017, a study was completed to assess flows in the Sand Creek and Credit River Watersheds (Belmont, Patrick et. al. 2017)

Surface Water Quality Results/Current Conditions. Demonstrated above there is a significant amount of information available concerning water quality of water bodies in the SWMO, as well as the upstream portions of the Sand Creek watershed. This section presents an overview of water body conditions across the SWMO. For detailed information, readers are referred to the links for the various studies and reports provided.

The 2016 Impaired Waters lists shows that there are a number of impaired waters in the SWMO (see Map 4: 2016 Impaired Waters, Map 5: 2018 Impaired Waters, and Table 1.7).

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Based on MPCA Watershed Monitoring as reflected in the Lower Minnesota River Watershed Monitoring and Assessment Report (2017) and preliminary lists shared by the MPCA it is expected that the 2018 List will grow substantially.

Table 1.7. Impaired Waters Listings in the SWMO

Impaired Use	2016 List	Pending 2018 List (MPCA, 2017b)
Aquatic Recreation	Cedar Lake – Nutrients Cleary Lake - Nutrients McMahon Lake Nutrients Thole Lake – Nutrients Minnesota River – Bacteria West Raven Creek – Bacteria County Ditch 10 – Bacteria	Cedar Lake – Nutrients Cleary Lake – Nutrients Thole Lake Nutrients <u>St. Catherine's Lake – Nutrients</u> <u>Cynthia Lake – Nutrients</u> <u>Pleasant Lake – Nutrients</u> Minnesota River – Bacteria <u>Porter Creek (Hwy 13 to Sand Creek) – Bacteria</u> <u>Credit River - Bacteria</u> West Raven Creek – Bacteria County Ditch 10 – Bacteria <u>Sand Creek (Porter Creek to Minnesota River) - Bacteria</u>
Aquatic Life	Sand Creek – Chlorides Sand Creek – Turbidity/TSS Sand Creek – Fish IBI Porter Creek – Turbidity/TSS Picha Creek – Fish IBI Raven Stream – Chlorides Minnesota River – Turbidity/TSS	Sand Creek – Chlorides <u>Credit River - Chlorides</u> Sand Creek – Turbidity/TSS Sand Creek – Fish IBI <u>and Invert IBI (most reaches)</u> <u>Sand Creek - Nutrients</u> <u>Unnamed Tributary Sand Creek –Fish and Invert IBI</u> <u>Porter Creek – Turbidity/TSS</u> <u>Porter Creek (Hwy 13 to Sand Creek) – Nutrients, Fish and Invert IBI</u> <u>Unnamed Tributary Porter Creek – Fish IBI</u> Picha Creek – Fish <u>and Invert IBI</u> <u>Raven Creek – Fish and Invert IBI</u> <u>East Raven – Chlorides</u> <u>West Raven – Fish and Invert IBI</u> <u>County Ditch 10 – Invert IBI</u> <u>Brewery Creek – Fish and Invert IBI</u> <u>Roberts Creek – Fish and Invert IBI, and TSS</u> Minnesota River – Turbidity/TSS
Aquatic Consumption	Cedar Lake – Mercury Cleary Lake – Mercury McMahon Lake - Mercury Minnesota River – Mercury and PCBs	Cedar Lake – Mercury Cleary Lake – Mercury McMahon Lake - Mercury Minnesota River – Mercury and PCBs

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* New potential listings are shown in underlined italics

A water body not being on the list in Table 1.7, above does not mean it fully supports uses. For many waters in the SWMO there is insufficient information to complete an assessment. McMahon, Murphy, and O'Dowd are the only lakes with sufficient information documenting that they fully support aquatic recreation (MPCA, 2017b). For streams, Table 1.7 only shows where impairments have been documented. Some of these reaches have information showing that they meet for other indicators, while for other indicators there is insufficient information. However, where Fish and Macroinvertebrate IBIs were assessed, only two reaches within the SWMO were found to meet the standard and are considered as supporting aquatic life. Oddly enough these reaches are County Ditches 2 and 3.

TMDL studies have been completed for:

- Cedar and McMahon Lake nutrient impairments (SWMO, 2017d)
- Sand Creek chloride impairments (MPCA, 2015)
- Mercury fish consumption impairments (MPCA, 2007)
- Minnesota River turbidity/TSS impairment (MPCA, 2017)

An internal draft TMDL for Cleary and Thole Lakes has also been completed by the MPCA and shared with the SWMO. Work on the overall Watershed Restoration and Protection Strategy (WRAPS) for the Basin and TMDLs for impaired water identified in the 2017 WRAPS are still underway by the MPCA.

SWMO staff do not believe that the increasing number of impairments is from a decline in water quality. Instead, it is from increased monitoring and monitoring for impairments in locations where there previously was no information. In other words, these recently documented impairments have existed for some time. Where there is enough data to evaluate trends, most waterbodies are improving or there is no evidence of a trend (Table 1.8). The exceptions are TSS in Sand Creek, BOD in the Minnesota River, and trophic state parameters in Cleary Lake.

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Table 1.8. Identified Surface Water Quality Trends

Water Body (Trend period)	Description	Source
Sand Creek at Jordan (2008-2012)	Improving TP and NO ₃ ; Declining TSS	Metropolitan Council, 2014a
Credit River (2008-2012)	Improving TP, NO ₃ , and TSS	Metropolitan Council, 2014b
O'Dowd Lake (2005-2016)	Improving TP, secchi disk, and Chl-a (Figure 1.6)	SWMO, 2017
McMahon Lake (2005-2016)	Improving TP, secchi disk, and Chl-a (Figure 1.7)	SWMO, 2017
Minnesota River (1995- 2009) at MN-19 Bridge in Henderson	Improving TP, and TSS; Declining BOD; and No trend Nitrate/Nitrite and Ammonia	MPCA, 2017a
Cedar Lake (2006-2016)	Improving TP; No change secchi disk and Chl-a (Figure 1.8)	SWMO, 2017
Cleary Lake (2010-2014)	Declining TP, secchi disk and Chl-a No evidence of secchi trend	MPCA, 2016 MPCA, 2017b
Thole Lake (2009-2011)	Improving TP, secchi disk, and Chl-a	MPCA, 2016
Murphy Lake	Improving secchi	MPCA, 2017b

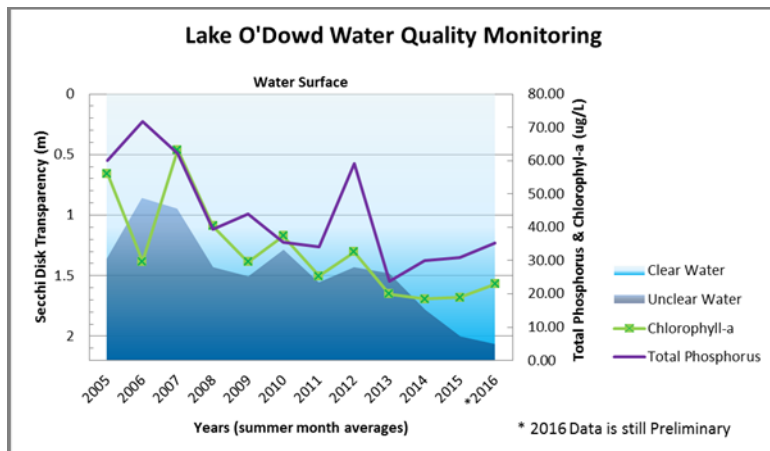


Figure 1.6. O'Dowd Lake Water Quality Trends

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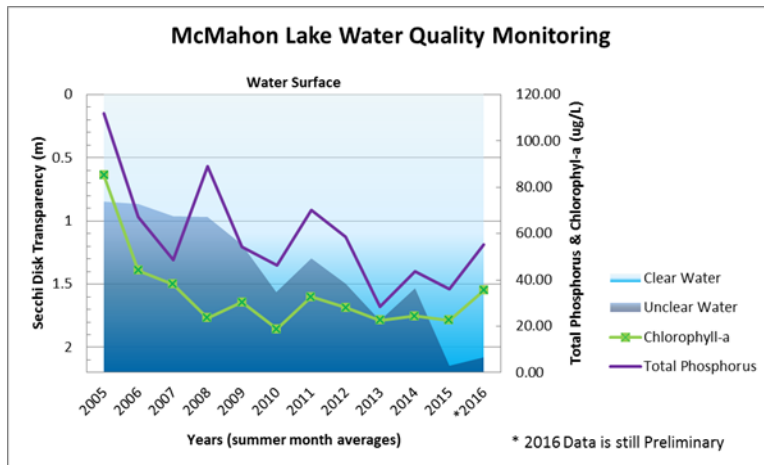


Figure 1.7. McMahon Lake Water Quality Trends

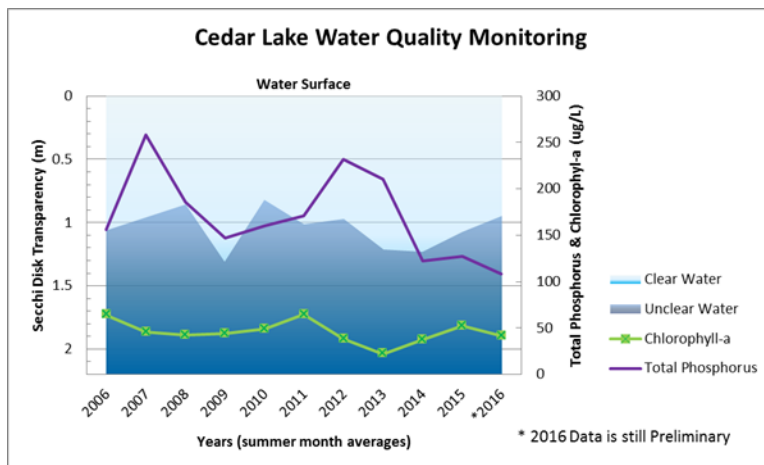


Figure 1.8. Cedar Lake Water Quality Trends

Pending 2018 impairment listings in the Sand Creek watershed including areas upstream of the SWMO are provided in Table 1.9.

Table 1.9. Pending 2018 Impaired Waters Listings Sand Creek Watershed, SWMO
(Source: MPCA, 2017b)

Use	Impairment
Aquatic Recreation	Hatch Lake— Nutrients Cody Lake—Nutrients Phelps Lake—Nutrients Pepin Lake—Nutrients Sanborn Lake—Nutrients
Aquatic Life	Sand Creek—Fish IBI, chlorides, TSS, and Nutrients East Raven Creek—Invert IBI, chlorides Porter Creek—TSS Picha Creek—Fish IBI

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Table 1.9. Pending 2018 Impaired Waters Listings Sand Creek Watershed, SWMO
(Source: MPCA, 2017b)

Use	Impairment
Aquatic Consumption	McMahon Lake—Mercury Cedar Lake—Mercury

Surface Water Quantity Results/Current Conditions. Current conditions for surface water quantity are discussed with respect to flooding and stream flow trends. Flood risks occur across the SWMO along major streams and rivers, and at more localized locations. Maps and studies have been prepared through the National Flood Insurance Program showing flood zones along major streams, rivers and lakes. The currently effective maps were adopted on 02/19/1987. However, Scott County along with the MDNR have completed more recent studies and mapping that are in the final stages of being adopted. Layers showing both the currently effective flood zones and the pending updated zones are available on the Scott County SG3 interactive map (Scott County, 2017b). In 2018, layers will be added to SG3 that show the flood zone areas that are changing with the new maps, the predicted depth of flooding and the probability of being flooded over a 30-year period (i.e., typical mortgage term). These maps and studies show that the greatest risk is along Sand Creek in the City of the Jordan, and the Credit River in the City of Savage. There is also risk from Minnesota River flooding in the County, portions of the SWMO, but it is a lower safety risk. Transportation structures are also at risk during Minnesota River flooding because bridge crossings at Hwy 41 in the City of Chaska, CR 9 in the City of Jordan, CR 1 in Blakeley Township, and Hwy 19 at the southern County line are all predicted to be unusable for during the 100-year flood. This leaves only the bridge that is open, within the SWMO, at Hwy 25 in Belle Plaine.

It is known that localized flooding and damage, outside of the FEMA mapped areas, also occurs in the SWMO. For the most part this flooding damage does not affect homes or buildings with the following exceptions:

- The Town of Blakeley in southwest portion of the SWMO, which was vacated during the June 2014 disaster. Reconstruction of CR60 following the 2014

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disaster has re-routed flow away from the homes and has included upstream stormwater detention.

- The outlet channel from Thole Lake that flows through Louisville and Jackson Townships before entering the City of Shakopee is largely comprised of private infrastructure. Analysis by the SWMO in 2012 found that no homes were at risk, but other accessory structures can be inundated.
- Homes around stormwater ponds in more urban areas of the SWMO can be at risk if water control structures in the ponds become compromised.
- Homes in the Wyndam Dr., Greenfield Park/Thrush Street areas of the City of Shakopee were put at risk during the 2014 disaster. However, the city has since added culvert capacity under CSAH 83 to better control flows.
- Bluff areas throughout the west and southwest portions of the SWMO are highly susceptible to erosion and incision has led to landslides, infrastructure damage, and sedimentation compromising flow capacity under bridges and in storm sewers. A number of roads throughout this area are at risk from lands slides occurring on adjacent property.
- There are hundreds of conservation practices installed by landowners in the SWMO, many were damaged during the 2014 disaster since the storm exceeded their design flows.

There are also areas where homes and structures are not at risk, but it is recognized that accelerated runoff and associated erosion causes localized problems. In general, these are in bluff areas and around some of the lakes. In bluff areas, significant erosion and mass wasting dumped a lot of sediment on cropland. Much of the cropland in the SWMO is drained by private infrastructure, which is aging, requires maintenance, and can become overloaded. McMahon and Markely Lakes are landlocked and can bounce significantly. Thole and O'Dowd Lakes are known to slowly draw down following wet periods.

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Stream flows (1990 through 2013) for the Credit River and Sand Creek were recently assessed for trends by Belmont, et. al. (Belmont et. al. 2017). Figures 1.9 and 1.10 present the results of their analysis showing that runoff ratios have not increased. They also completed a more detailed analysis using flow duration curves. A copy of their report is available at on Scott County's website (Belmont et. al 2017). From this analysis they conclude:

"Results indicate that runoff ratios and river flows have not increased substantially in the Credit River and Sand Creek, in contrast to the trend observed in many other watersheds throughout southern Minnesota. Credit River has experienced a decrease in moderate and low flows, but a significant increase in the very highest flows. In contrast, Sand Creek exhibits marked decreases across the full range of flows and a marked decrease in the runoff ratio over the past two decades. The fact that runoff ratios have not increased is likely due to installation of many Water Retention Structures (WRS) during the 1990s and 2000s. Conversion from row crops to perennial vegetation may have also hindered runoff ratios from increasing, despite significant increases in very high and extreme rainfall. Moderate to low hourly rainfall intensities have not changed significantly over the past six decades. However, the highest hourly rainfall intensities (top 1% of events) have increased considerably since the early 1970s."

And:

"We used a combination of existing data, lidar and historical air photos to develop a semi-automated algorithm to map WRS in the Credit River watershed in 1937, 1970, 2003, and 2016. From 1937 to 2016, the number of WRS in the Credit river watershed increased dramatically from 314 to 677, with the greatest increase occurring between 1970 and 2003."

This increase in recent WRSs is from the application of standards requiring stormwater retention and detention with new development. The City of Savage and the Credit River Township area was one of the fastest growing areas in the country in the 1990s and early

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2000s. Stormwater standards for detention have been in place since the early 1990s, with retention (infiltration) becoming a requirement of the SWMO starting in 2009.

The observed reduction in stream flow in Sand Creek is more puzzling since the watershed has not experienced as much development as the Credit River watershed. SWMO is evaluating this finding in more detail starting with assessing whether there has been a large conversion from cropland to perennial vegetation associated with rural residential (i.e., large lot) development.

The flow changes observed show the management efforts are having some affect. They are not enough to moderate large flood events. However, they may be helping with water quality in the rivers, particularly TSS and other particulate type pollutants.

Belmont, et. al. (2017) state that *“In addition to temporarily storing water and reducing peak flows downstream, WRSs trap sediment that is delivered from the catchment that drains to them. We calculated that the existing water retention structures essentially eliminate 13% of the watershed from contributing sediment to the Credit River.”*

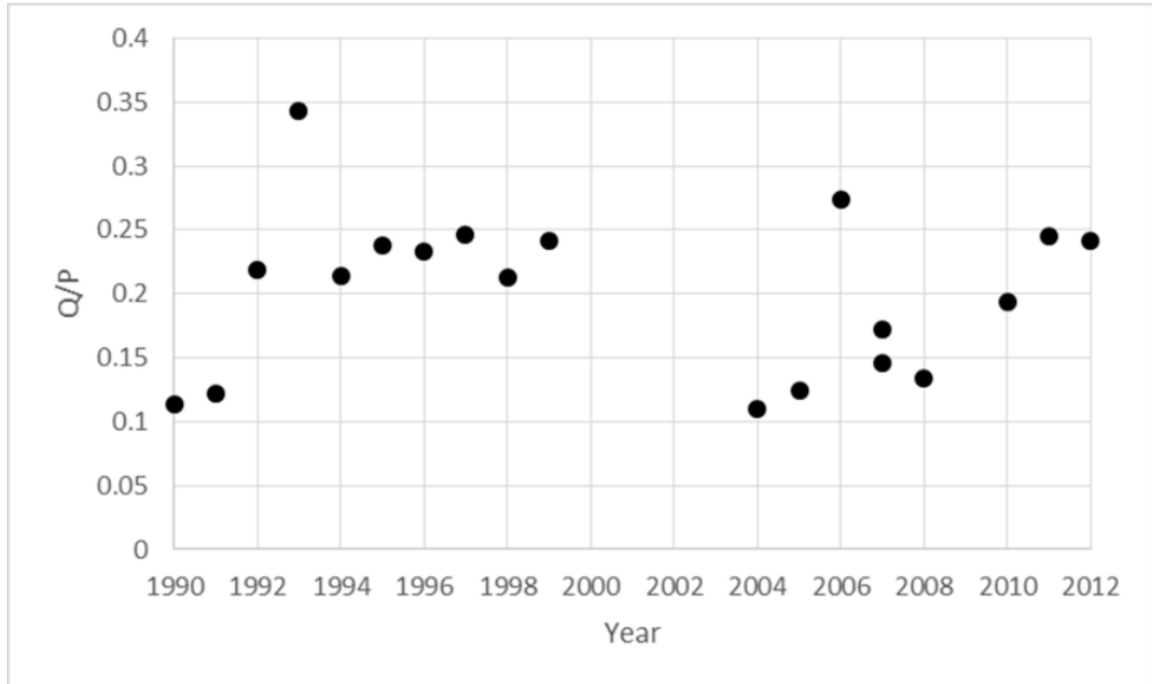


Figure 1.9. Credit River Annual Runoff Ratio (Source: Belmont, et. al., 2017)

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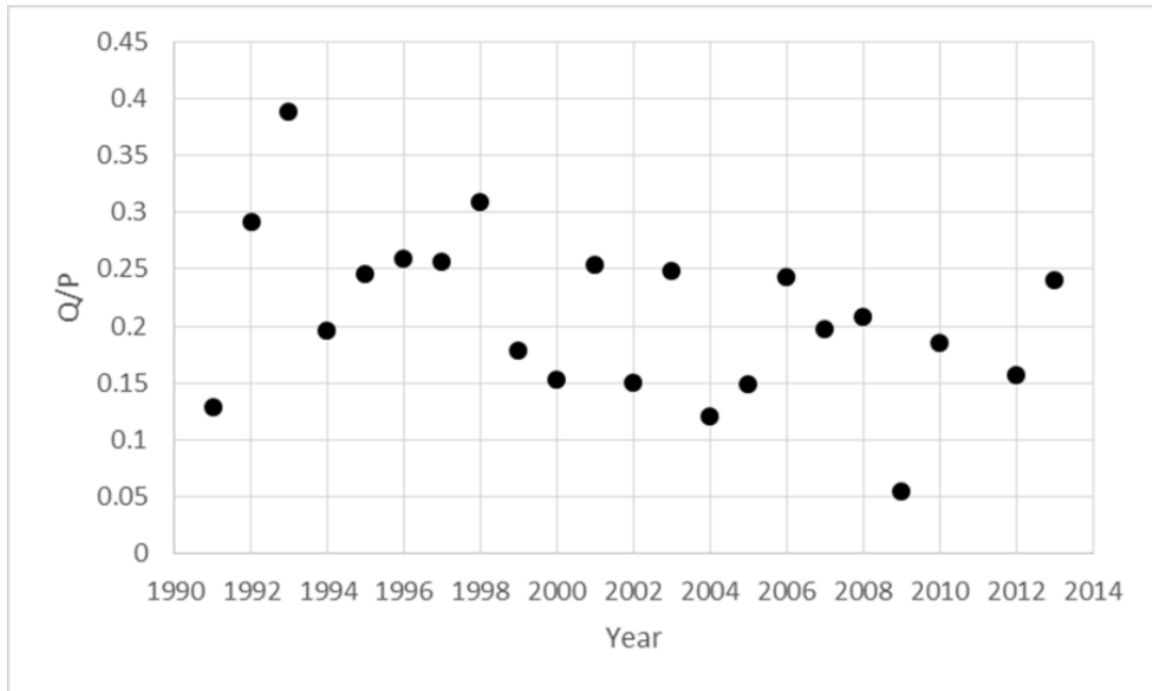


Figure 1.10. Sand Creek Annual Runoff Ratio (Source: Belmont, et. al., 2017)

Increased annual flows are documented in the Minnesota River (see Figure 1.11) causing sediment to build up, resulting in a host of problems upstream and downstream of the SWMO (Jennings, 2016).

"We know that southern Minnesota rivers have exhibited a significant increase in annual flows over the last several decades owing to a combination of changes in climate, ground cover, and artificial drainage..."

The eroded sediment ends up clogging the low-gradient reaches of the lower Minnesota River, before the confluence with the Mississippi. Some makes its way to Lake Pepin further downstream...

Modeled projections are for more intense April-June storms and an overall increase in annual—precipitation. The precipitation patterns are shifting, too, with more rain falling in the Minnesota River basin. So even if we do nothing, the flows in the river will continue to increase, resulting in increased flooding, erosion, and sediment transport."

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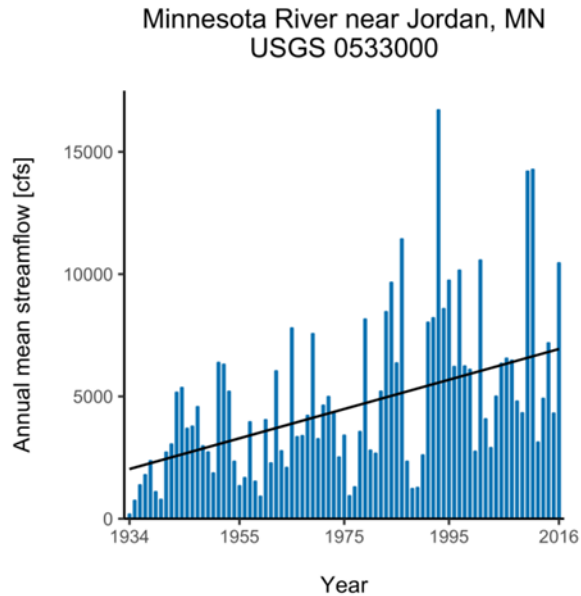


Figure 1.11. Annual Mean Streamflow for the Minnesota River near Jordan, MN
(Source: Jennings, 2016)

Groundwater

The basic hydrogeology of aquifers within the SWMO was described previously (page 1-5). The following provides a summary of monitoring programs and environmental data collection efforts that have or are taking place within the SWMO. This is followed by a summary of what is known about the condition of groundwater within the SWMO. The SWMO also acknowledges that groundwater flow gradients in Scott County are generally toward the Minnesota River. In other words “groundwatersheds” do not mirror surface water drainage boundaries. Infiltration, recharge, groundwater flow and/or contamination within the SWMO is connected to and potentially affects groundwater conditions in adjoining Watershed Organizations, namely the Prior Lake—Spring Lake Watershed District and the Lower Minnesota River Watershed District. Thus, the following summary is not just limited to just the SWMO.

Monitoring Programs and Information. In anticipation of completing this Plan update the SWMO contracted with the Scott SWCD to research and compile a review of groundwater monitoring efforts within Scott County. This review was completed August,

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2016. Readers are referred to their report available on Scott County's website for details (SWCD, 2016b). Their conclusion is that:

"Groundwater quality data has, and continues to be collected in Scott County from many wells representing several aquifers throughout the county. There is, however, little coordination among agencies regarding monitoring plans and strategy. Data collected by MDH for large public (municipal) water suppliers is perhaps the most extensive in terms of parameters measured and long-term stability of monitoring locations. This is due to water testing requirements established in the federal Safe Drinking Water Act. However, raw water sampling that is representative of aquifer contamination—as opposed to finished water sampling that represents contamination originating within the water distribution system—is sampled annually or less frequently, depending on the parameter and past results. These community public systems sampled by MDH are sparse across the landscape and generally located within cities and are not representative of rural areas. Private wells have better spatial distribution representing rural and developing areas but have less intensive sampling requirements. There are several sources of data originating from private wells that provide a good indication of nitrate contamination, specifically. The highest quality, most robust private well data set comes from a randomized sample conducted by the county of 67 wells registered through the MDH data base. This dataset covers nitrate and atrazine but provides only a snapshot of 2011 and does not identify trends. Other private well data is voluntarily reported through nitrate testing clinics sponsored by MDA. Recently these results were not reported due to lack of funding. Private well water samples tested at Minnesota Valley Testing Lab (from kits sold to landowners by the county) are also available upon request. However, there is no requirement to test private well water unless required for some home business licensure such as daycare or foster care. Nitrate clinic data and private landowner test results are not systematic and do not have the same data integrity as programs operated by the state or county that have technicians using trained sampling techniques. The MPCA has also collected water quality data from a select number of wells in the county but only operates one well on a

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permanent, long-term basis. The data collected by MPCA is also extensive, covering many test parameters. MDA does not operate any monitoring wells in Scott County.

The MDNR also has a sustained presence in the county operating several groundwater level observation wells. The MDNR continues to contract with Scott SWCD to monitor observation wells. LMRWD also continues to monitor several observation wells in the Savage Fen and submits the water level data to MDNR. MDNR manages all the water level data from both sources in its database and is easily accessible to the public.”

In addition to data collection efforts reviewed by the Scott SWCD, the Metropolitan council has compiled a significant amount of information in developing their Metro Model 3: Twin Cities Area Ground Water Flow Model (Metropolitan Council, 2014c). This model was then used to generate additional predictive information about groundwater in the region as part of the 2015 Master Water Supply Plan (Metropolitan Council, 2015). Local communities and utilities are also in the process of developing Local Water Supply Plans that will become part of the Comprehensive Land Use Plan updates due to the Metropolitan Council by the end of 2018. These plans are available from the local communities, and once complete the Metropolitan Council intends to use them to update some of the analyses presented in the 2015 Master Water Supply Plan.

Additional groundwater information is also included in Wellhead Protection Plans completed and updated by various local communities. These plans are available from each local community, with mapping of protection areas available from the Minnesota Department of Health (MDH, 2017).

There are also plans in place to collect additional information in 2018. The Minnesota Department of Agriculture (MDA) will be implementing the Township Well Testing Program in a small area of Scott County in 2018. This program will send homeowners in identified townships a sampling kit. The water sample will be collected by the homeowner and sent to a certified lab. If nitrate is detected in the water sample, the homeowner may be offered a subsequent test for pesticides. Results from individual wells are sent directly to the well owner (homeowner) along with a letter explaining the

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results. In the SWMO, it appears that the focus is on areas with high groundwater susceptibility, with sections of St Lawrence, Sand Creek and Louisville Townships included in the effort. The SWMO is also planning a well monitoring effort for 2018. This effort will be similar to that completed by the SWMO in 2011 with 60 to 70 wells targeted across the unincorporated area of the SWMO. Anticipated parameters include nitrates, amino-assay test for atrazine, and possibly arsenic.

Groundwater Quality Results/Current Conditions. According to the 2014 Minnesota Drinking Water Annual Report, no Scott County community water systems exceeded the 10 mg/L nitrate standard (SWCD, 2016b). Nitrates are a common groundwater pollutant and can cause “Blue Baby Syndrome”. Shakopee community public water supply systems have tested above 3 mg/L, and they are working with MDH to slow or reverse nitrate pollution in their source water. There was also a recent report of elevated nitrate levels in water at the Brookhaven development southwest of Shakopee (Davy-Sandvold, 2017).

The 2011 SWMO sampling of 67 wells detected nitrates in some wells, but none exceeding the drinking water standard. Atrazine was not detected in any of the wells. Results from county test kits sold to home owners and analyzed by Minnesota Valley testing laboratory show very few results exceeding the drinking water standard (Figure 1.12). The average result for nitrates from the test kits is less than 1 mg/L. Only 11 results exceeded the standard in 19 years of testing, representing eight properties.

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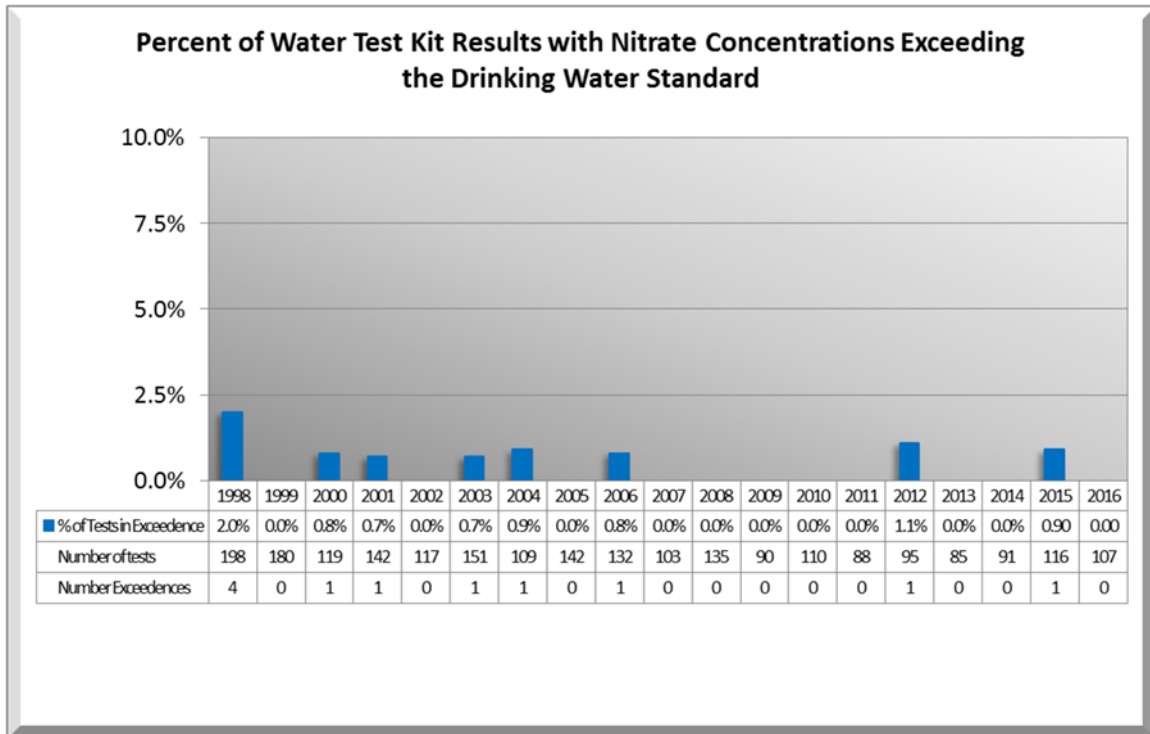


Figure 1.12. Water Test Kit Results for Nitrate (SWMO, 2017)

In general, staff observations at the county are that the small number of wells with elevated nitrates are found in areas where the groundwater is moderately to highly susceptible to contamination (Scott County, 2017b), and where the wells are in a shallow aquifer. Most of these wells are in the Minnesota River Valley (i.e., below or along the toe of the bluff). There also is a cluster along the western border of the City of Savage and Credit River Township where there is a 100 foot or so layer of sand/gravel beginning at or just below the surface.

Finally, there are several parameters in groundwater detected above background levels at the now closed Louisville Landfill. The Louisville Landfill is located just north of the Bryan Rock property and just east of the central portion of the Malkerson Sales property. The northern half of the landfill is in the LMRWD with the southern half in the SWMO. Groundwater monitoring has detected the presence of contamination along the western edge of the landfill and in off-site downgradient wells.

The landfill was closed in 1990 and is now part of MPCA's closed landfill program. The landfill has been covered and a gas extraction system installed. MPCA continues to

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monitor groundwater. Concentrations of most contaminants in the groundwater have declined; however, downgradient wells continue to detect low levels of volatile organic compounds (VOCs).

Groundwater Quantity Results/Current Conditions. Scott SWCD monitors 15 MDNR observation wells within the county, plus several wells within the Savage Fen and surrounding area. Water level trends for six of these wells are summarized below. The other seven MDNR wells were omitted because they either connect with multiple aquifers or have a short or incomplete data record.

MNDNR OBSERVATION WELL LOCATIONS - FY 2018

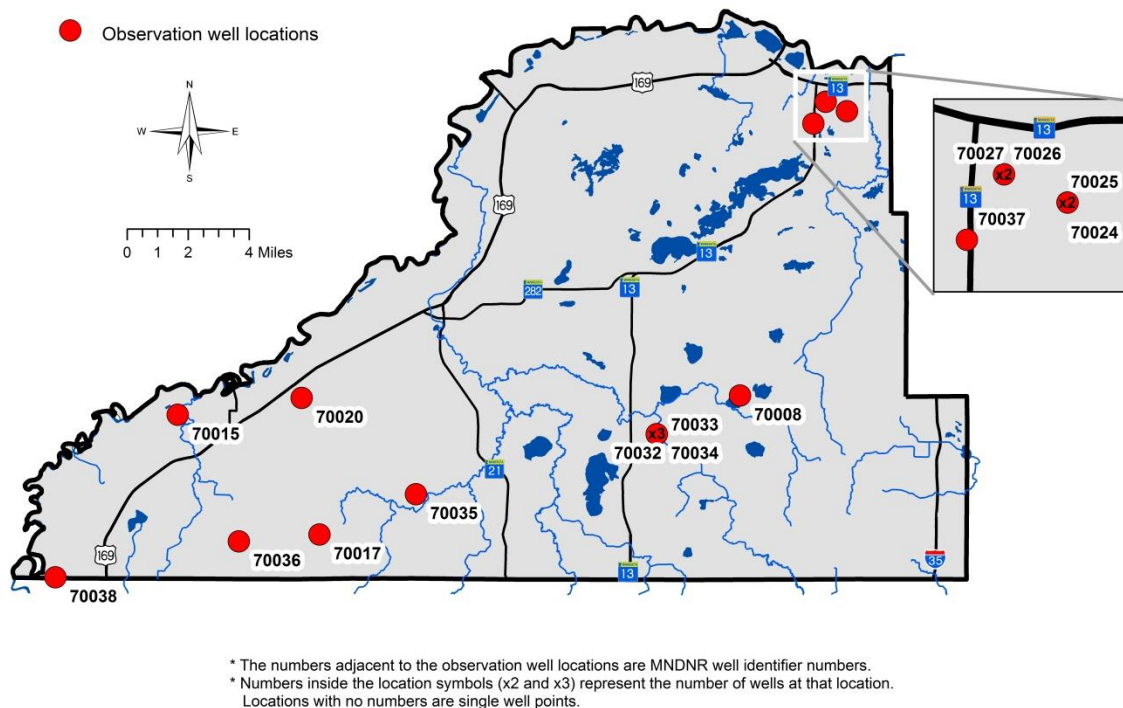


Figure 1.13. Map of observation well locations included in this plan.

Two wells were monitored in the Prairie Du Chien Aquifer. The first well, at St Catherine's Church, has monitoring data from 1979 to 2017. The recorded water level fluctuated 10 feet over that time with a maximum level of 939.76' above sea level and a minimum level of 929.76' above sea level (Figure 1.14). The overall trend is increasing since 1979 but has been on decline since 1999. The second well, at the Savage Post Office, has

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monitoring data from 1998 to 2017. Maximum water depth is 786.50' and minimum depth is 778.14' above sea level (Figure 1.15). The trend is somewhat flat with a slight increase since 2010.

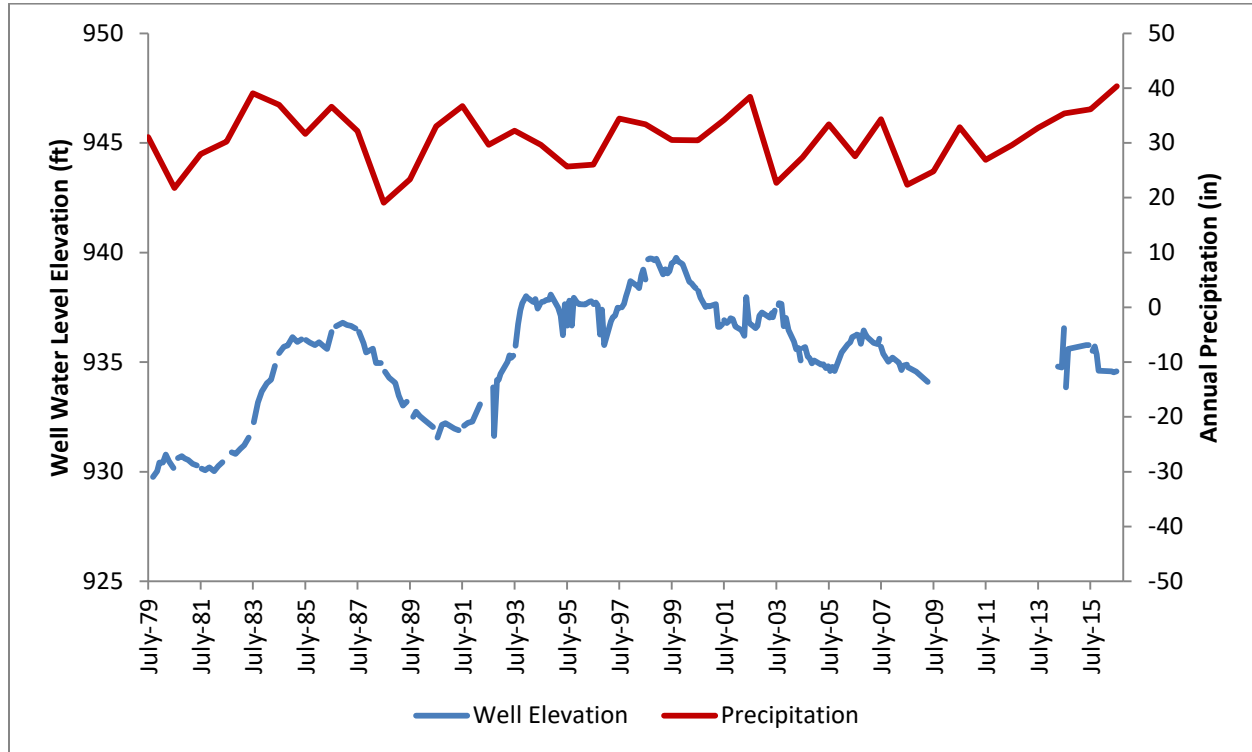


Figure 1.14. St. Catherine's Church well. This well monitors water level in the Prairie Du Chien aquifer. Precipitation is plotted in annual totals.

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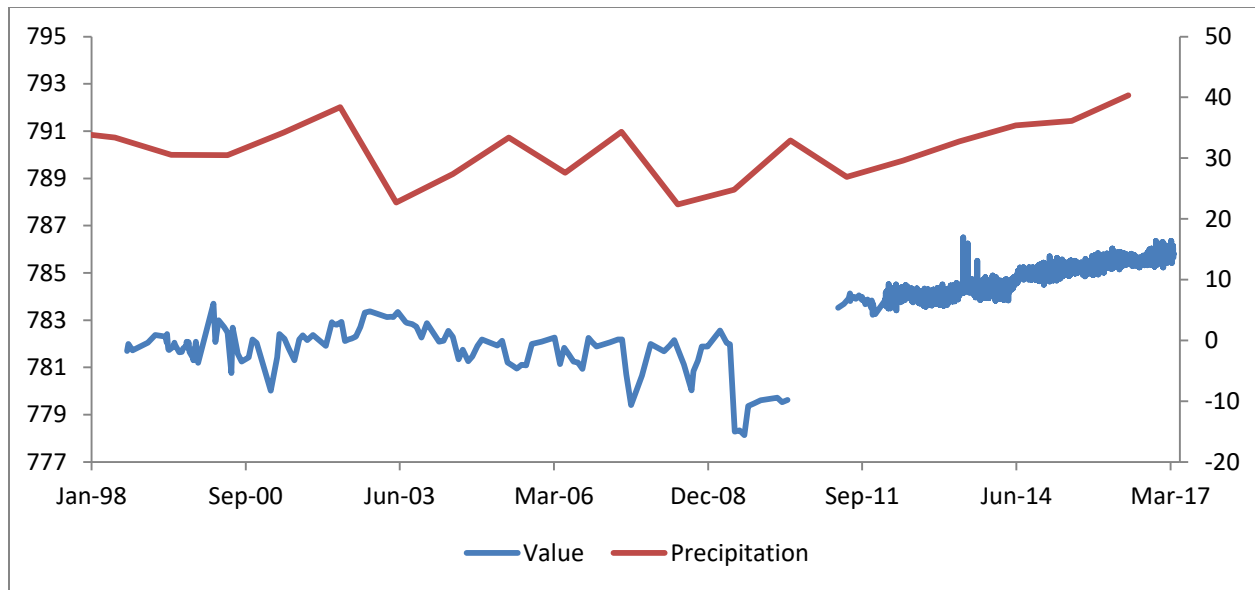


Figure 1.15. Savage fire station Prairie Du Chien well. This well monitors water level in the Prairie Du Chien aquifer. Precipitation is plotted in annual totals.

A second well at the Savage Post Office monitors the Jordan Aquifer. This well has monitoring data from 1998 to 2015. Maximum water depth was 778.55' and minimum depth was 765.94' above sea level (Figure 1.16). The water level trend is somewhat flat with an increase starting in 2010.

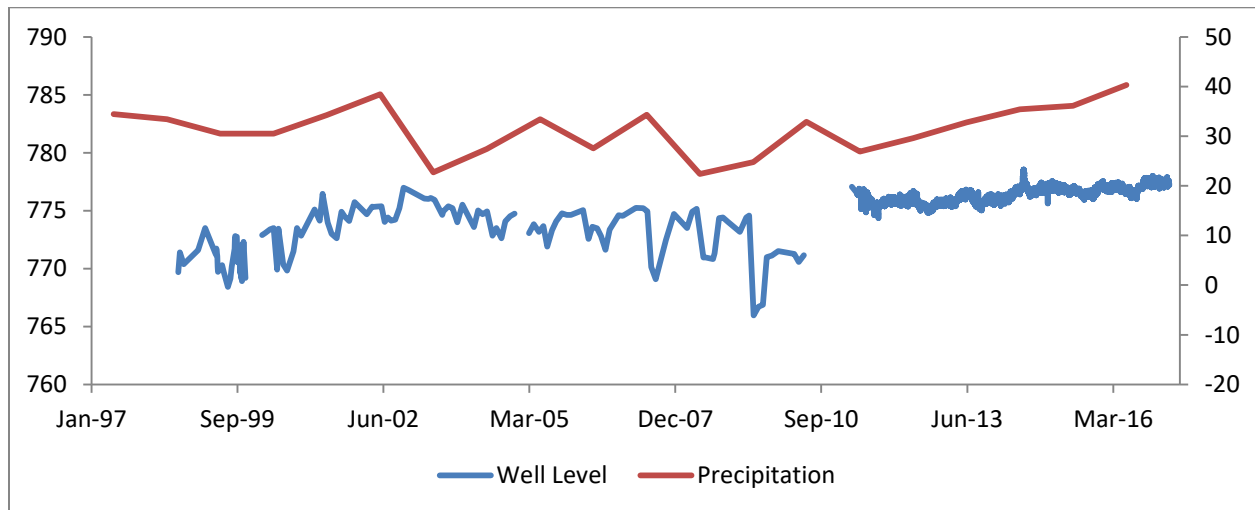


Figure 1.16. Savage fire station Jordan well. This well monitors the Jordan aquifer. Precipitation is plotted in annual totals.

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The monitoring well in the Michelle Wildlife Management Area monitors the Tunnel City Wonewoc Aquifer. This well has data from 1981 to 2017. The maximum level is 858.24' and minimum is 846.68' above sea level (Figure 1.17). Water levels have been mostly flat over the past 15 years.

The well located in Shep's Gravel Pit near Belle Plaine has observations recorded from 1979 to present. In that time, the water level has fluctuated between 752.72' and 745.90' above sea level. Aside from a short-term dip due to drought condition in the late 80's, the well level has remained relatively flat (Figure 1.18).

Lastly, a monitoring well located next to a large municipal well in Savage also monitors the Tunnel City Wonewoc aquifer. Observations of Savage well #8 began in 2012. The water level has fluctuated greatly within each year from a maximum of 806.89' above sea level to a minimum of 725.12' above sea level. This well is likely within the cone of influence of the large municipal well on the same parcel. There is a large depression in water level during the summer months that coincides with increased city water usage due to summer irrigation (Figure 1.19.)

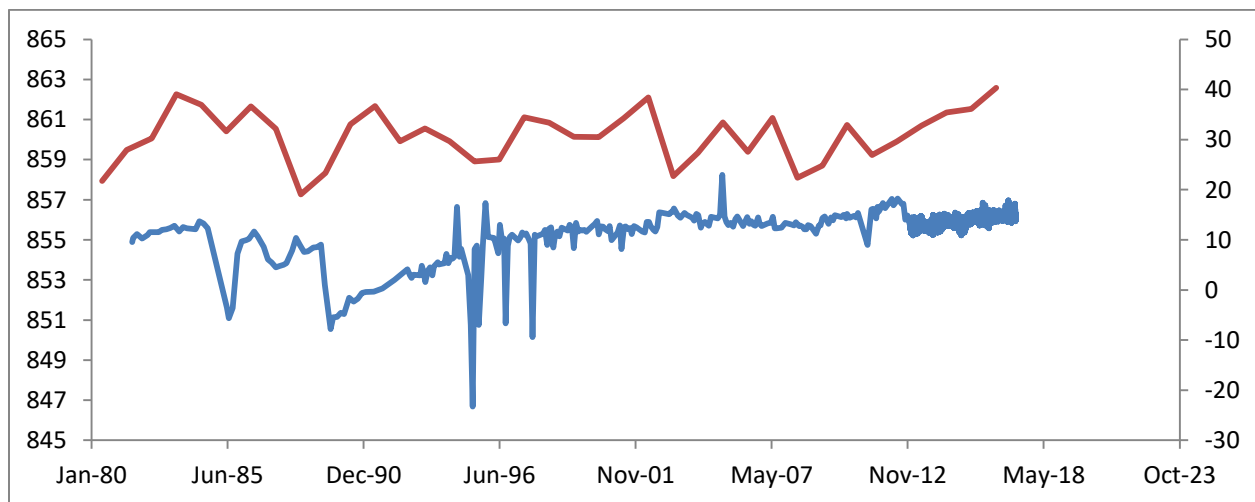


Figure 1.17. Michell WMA observation well. This well monitors water level in the Tunnel City Wonewoc aquifer. Precipitation is plotted in annual totals.

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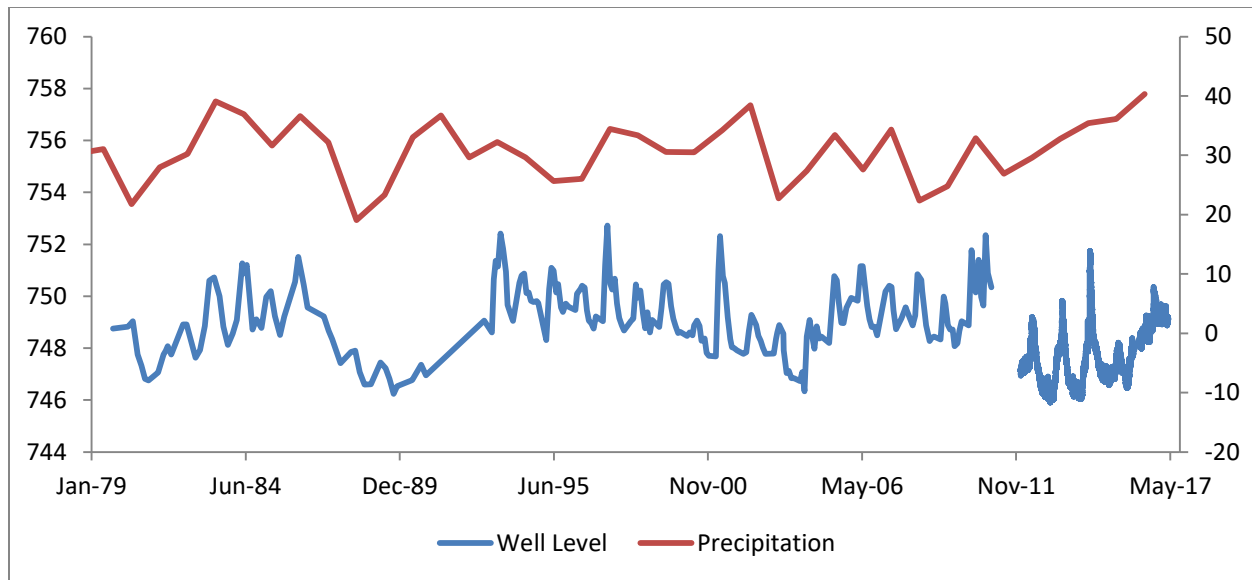


Figure 1.18. Shep's Gravel Pit. This well monitors water level in the Tunnel City Wonewoc aquifer. Precipitation is plotted in annual totals.

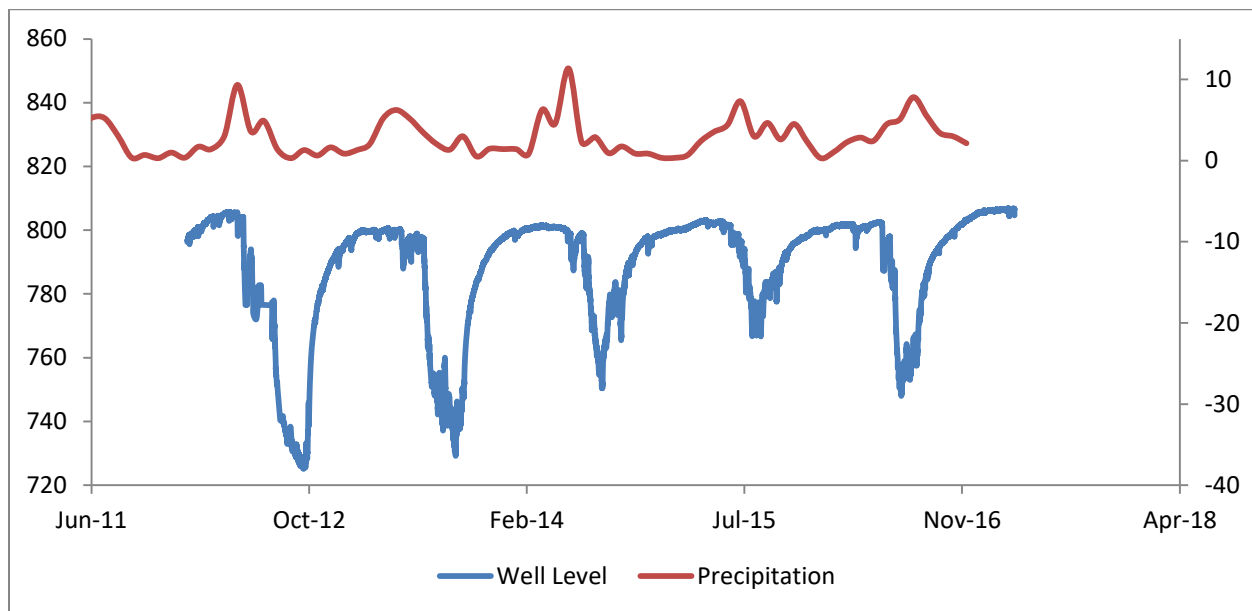


Figure 1.19. Savage Observation Well near municipal well #8. This well monitors water level in the Tunnel City Wonewoc aquifer. Precipitation is plotted in monthly totals.

In general, the well monitoring does not show any type of systematic decline in any of the observed wells, with an increasing trend shown in several. This is in contrast to model predictions generated by the Scott County and the Metropolitan Council. In 2009 Scott County (2009) completed an analysis of impacts to groundwater supply from

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various development patterns in the unincorporated areas on the east side of the county. The study was completed by BARR Engineering building on the Metropolitan Council's model that was available at the time. Modeling was showing risk of significant groundwater drawdowns in portions of the Cities of Prior Lake and Savage, and to a lesser extent the City of Elko-New Market. The question explored by the County was effect of additional development in the area at various densities ranging from urban to rural. The area analyzed included unincorporated portions of Credit River, Spring Lake, New Market and Cedar Lake Townships and was called the Detailed Area Plan (DAP) area.

Conclusions of the study were that development of the DAP area with a rural land use seems to have little effect on the groundwater system. In fact, the potential recharge as a result of rural development may actually help reduce drawdowns caused by increased municipal pumping. Development of the DAP area with an urban land use showed a much greater effect on the groundwater system. A reduction in baseflow to the Credit and Vermillion Rivers was observed for all model simulations. Reductions in baseflow were greater for the DAP area developed with an urban land use in comparison to reductions in baseflow with the DAP area developed with a rural land use. Model predicted drawdowns at Savage Fen ranged from 4.2 feet, for year 2030 average pumping with rural land use in the DAP area, to 9.2 feet, for ultimate development in the DAP area with urban land use. These findings, with a lessor impact predicted for rural development, were part of the reason the county guided development in the DAP area in its 2030 Comprehensive Land Use Plan for rural residents as an end use.

Updated modeling, and more recent analyses, completed by the Metropolitan Council show the potential for drawdown impacts (Metropolitan Council, 2015; pages 1-57 through 1-59) primarily in surficial aquifers. Predicted impacts are less in the City of Savage area than previously predicted, probably because the city now receives much of its municipal water from the City of Burnsville rather than aquifers directly under the city. The Metropolitan Council's information has been provided to cities and water utilities for their consideration in updating Local Water Supply Plans. These plans will be included as

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part of the overall Comprehensive Land Use Plan updates due by the end of 2018. At that time, the Metropolitan Council will use the approved future water use projections in the Local Water Supply Plans to update the modeling and predictive results.

HUMAN ENVIRONMENT

Feedlots

The owners of feedlots in shoreland (with 10 animals or more) in Scott County must register them with the Minnesota Pollution Control Agency (MPCA). The Scott Soil and Water Conservation District (Scott SWCD) receives records of the feedlots registered in the county from the MPCA. Feedlots must be permitted and in compliance with Chapter 9 of the Scott County Ordinance (Scott County, 2001). Below is the Scott SWCD's most recent summary of feedlot trends in Scott County (SWCD, 2017):

"Anecdotally speaking, we have a fairly uniform distribution of all feedlot types throughout the county except for poultry (we have no registered poultry operations). Swine are not extremely prevalent but are concentrated on the southwest corner of the county, the other species are scattered all throughout the county.

The trends in Scott County feedlots has been an evolutionary process over 15+ years...initially some of the larger producers may have had some significant pollution issues that may have needed some fixes. Those larger operation fixes were largely addressed through corrections or producer retirement. Following the reduction of pollution from larger facilities came fertilizer price hikes which greatly aided in better dispersal and application practices for manure utilization. Coupled with education and cost savings the land application practices that could have used improvement were largely rectified. Given the good progress for larger sites, the more recent instance of pollution potential lies with the smaller sites. Those situations have elevated in scope based on forward progress from the larger producers. In 15 years, we have seen several of the larger operations, especially dairy, cease operation. Even though we may have lost some larger operations we have seen an increase in the number of small hobby farms or midsize operations popping up, which largely consist of beef or horses. These small to midsize operations are not

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always required to register but sometimes have more obvious instances of pollution potential (albeit minor compared to land application from large operations or pollution situations from large operations of old). The smaller operations that could have pollution potential may not be aware of what potential their practices may be generating from a pollution concern perspective. Even though the actual pollution loading potential from small sites may be minor in the scheme of things, with the larger sites in more obvious compliance, concern for the smaller sites with questions rise to the top.

As for odor issues, we don't have very many problems, there are occasional complaints from the rural areas but they are quite rare. Pasture isn't an issue either, sometimes landowners need a little education in what feedlot and pasture conditions look like, but that is generally an opportunity for education and not a major problem that we have encountered."

The SWCD postulates that overall animal numbers have not changed much from ten years ago. The change in trend is from fewer large producers to a larger number of smaller hobby-farms. Map 6 shows the extent of feedlots within the SWMO watershed and their sizes.

Permitted Wastewater Discharges

Overall, there are thirty (30) National Pollutant Discharge Elimination System (NPDES) permitted wastewater facilities authorized for surface discharge in Scott County; and eight (8) State Disposal System (SDS) permit holders which are not authorized for discharge in Scott County (MPCA, 2017c). Table 1.10 summarizes the facilities that are permitted. In addition to those identified below, Seneca Foods in Montgomery, which is outside of the SWMO watershed, also discharges cold water into Sand Creek.

Table 1.10. Permitted Wastewater Discharge Facilities in Scott County

Treatment Facility	Permit #	Use	Permit Type
Belle Plaine Wastewater Treatment Facility	MN0022772	Domestic	NPDES/SDS
Jordan Wastewater Treatment Facility	MN0020869	Domestic	NPDES/SDS
Lonsdale Wastewater Treatment Facility	MN0031241	Domestic	NPDES/SDS
Mankato Water Resource Recovery Facility	MN0030171	Domestic	NPDES/SDS
Met Council - Blue Lake Wastewater Treatment Facility	MN0029882	Domestic	NPDES/SDS
New Prague Wastewater Treatment Facility	MN0020150	Domestic	NPDES/SDS
Anchor Block Company - South Plant	MNG490303	Industrial	NPDES/SDS
Anchor Glass Container Corporation	MN0003042	Industrial	NPDES/SDS

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Table 1.10. Permitted Wastewater Discharge Facilities in Scott County

Treatment Facility	Permit #	Use	Permit Type
Bituminous Roadways Inc.	MNG490006	Industrial	NPDES/SDS
Bryan Rock Products Inc.	MNG490080	Industrial	NPDES/SDS
Cargill Savage East	MN0054445	Industrial	NPDES/SDS
Cargill Savage West	MN0062201	Industrial	NPDES/SDS
Cemstone Products Company	MNG490133	Industrial	NPDES/SDS
CHS Inc - Savage	MN0068454	Industrial	NPDES/SDS
Fabcon Inc.	MN0068284	Industrial	NPDES/SDS
FM Asphalt	MNG490073	Industrial	NPDES/SDS
Forterra Concrete Products	MNG490288	Industrial	NPDES/SDS
Jordan Gravel LLC	MN0070564	Industrial	NPDES/SDS
Knife River Central Minnesota	MNG490003	Industrial	NPDES/SDS
Max Johnson Trucking Inc.	MNG490260	Industrial	NPDES/SDS
New Prague Utilities Commission	MNG640117	Industrial	NPDES/SDS
Prior Lake Aggregates Inc.	MNG490250	Industrial	NPDES/SDS
Prior Lake/Spring Lake Ferric Chloride Water Treatment Plant	MN0067377	Industrial	NPDES/SDS
Rahr Malting Company - Shakopee	MN0031917	Industrial	NPDES/SDS
Savage Riverport	MN0069035	Industrial	NPDES/SDS
Shakopee Sand LLC	MNG490275	Industrial	NPDES/SDS
Sibley Aggregates - Nonmetallic	MNG490061	Industrial	NPDES/SDS
Superior Minerals Company	MN0063584	Industrial	NPDES/SDS
Tiller Corporation	MNG490010	Industrial	NPDES/SDS
Wm Mueller & Sons Inc.	MNG490042	Industrial	NPDES/SDS
Bonnevista Terrace Manufactured Home Community	MN0051985	Domestic	SDS
Credit River Township - Stonebridge	MN0067261	Domestic	SDS
Credit River Township - Territory	MN0066826	Domestic	SDS
Credit River Township -Monterey H&S Passage	MN0066389	Domestic	SDS
Jackson Heights Mobile Home Park	MN0057967	Domestic	SDS
Met Council - Blue Lake Biosolids Facility	MN0064599	Domestic	SDS
Mobile Manor Park	MN0056197	Domestic	SDS
Rahr Malting Company - Shakopee	MNG960040	Industrial	SDS

Existing Land Use

Land use in Scott County is summarized by Table 1.11 on the next page. In general, the land cover in the SWMO watershed consists of more agriculture and perennial grass than the county as a whole (see Figure 1.20 on page 1-52). Land Cover in the Sand Creek subwatershed is mostly agricultural, documented in both the Sand Creek Watershed Total Maximum Daily Load

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study (TMDL) and the Cedar Lake and McMahon Lake TMDL. The land cover in the Credit River subwatershed is mostly rural, as written in the Credit River Protection Plan. These studies and plans are available for viewing on the Scott County's website (Scott County, 2017a). Although these studies are a few years old, the land cover has not changed greatly due to the economic recession, which all but halted housing development nationwide in the late 2000's.

Table 1.11. Land Cover in Scott County (University of Minnesota, 2017)

	Classifications	Area in Acres	Percent of Scott County
Waters	River	1,730	
	Lakes/Ponds	10,323	
	Total Acres of Waterbodies	12,053	5%
Impervious	Roads/Paved Surfaces	17,562	
	Buildings	3,435	
	Extraction (Mining)	277	
	Bare Soil	65	
	Unclassified	6	
	Total Acres of Impervious	21,345	9%
AG	Agriculture	78,057	
	Total Acres of Agriculture	78,057	33%
Perennial	Grass/Shrub	48,862	
	Forested/Shrub Wetland	9,266	
	Deciduous Tree Canopy	42,325	
	Coniferous Tree Canopy	626	
	Emergent Wetland	22,975	
	Total Acres of Perennial	124,053	53%

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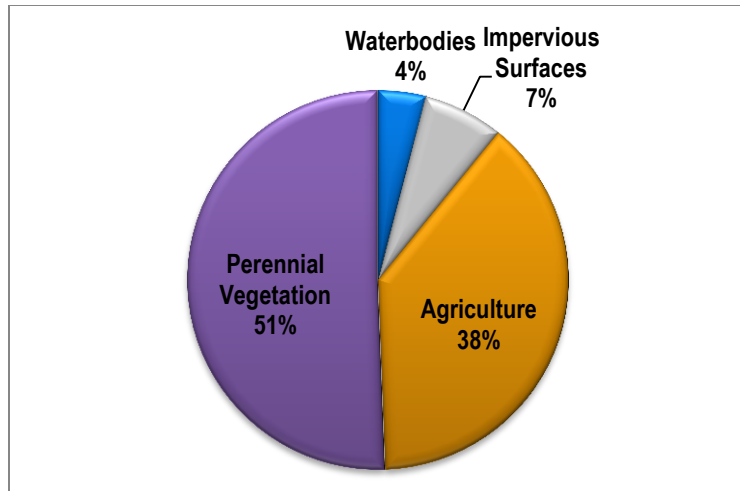


Figure 1.20. SWMO Land Cover

Expected Population Growth

Scott County is projected to add another 69,592 residents by 2040 as compared to the 2010 census count per the Metropolitan Council. This is an increase of 53 percent. Most of the expected growth will occur in the incorporated cities. The rural centers of Belle Plaine, Elko New Market, New Prague, and Jordan are forecasted to have the greatest percent change over the next two decades. The three northern cities (Savage, Prior Lake, and Shakopee) will have steady growth, and given their already larger size their net gain in population will be larger than in the rural centers. Townships are projected to have smaller growth rates: with a handful projected to lose population by 2040. Scott County is projected to become even more urbanized by 2040, with nearly 88 percent of the population residing in the cities and 12 percent in the townships.

The pending population growth will mean that urban and rural centers within Scott County will need to meet the increasing needs for stormwater, wastewater, and groundwater management. As the amount of impervious surfaces increases, administrators in these population centers must be prepared to take steps to avoid adding nutrient, bacteria, erosion, sediment, and other pollutants into downstream waterbodies. Run-off from lawns and gardens, streets, parking lots, etcetera, will contribute to nutrient and bacteria loading downstream if proper stormwater management is not in place. Erosion and sediment loading would also increase during development in a number of ways such as: channel alterations, creation of more artificial conveyance systems, unbuffered drainages, and altering existing wetlands.

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Attitudes Toward Resource Management and Conservation

In 2012, in partnership with the University of Minnesota, Department of Forest Resources, the SWMO completed a survey of landowners in the Sand Creek watershed. The purpose of the survey was to assist the SWMO and decision makers in better understanding landowners' beliefs, attitudes and behaviors associated with water resources and conservation practices. The survey also inquired in more detail about landowner perspectives on streamside buffers as a conservation practice. Specific study objectives were to assess 1) landowner values and beliefs about their communities, the environment, water quality issues and water resource management; 2) landowner current and future conservation behaviors; and 3) who or what influences landowners' conservation decisions. (Davenport 2012)

Cultural and Environmental Values and Beliefs about Water. In all, 432 landowners completed and returned surveys. A majority of the respondents were male (78%) with a median age of 55 and almost 40% use their land/property for agriculture production and 54% reported maintaining buffers on at least some streams or ditches on or adjacent to their property. A large majority of respondents agreed that streamside buffers help to improve water quality for people living downstream (80%) and that buffers should be protected because they provide habitat (72%). Respondents believed that it is their own personal responsibility to help protect water quality (87%). In addition, a large majority of respondents reported feeling a personal obligation to do whatever they can to prevent water pollution (86%) and to use conservation practices on their land/property (84%).

Influencing Conservation Behaviors. Overall, respondents rated family as most likely to influence their decisions about conservation practices, next in line was the county Soil & Water Conservation District (SWCD) and the MDNR. When asked, what would increase the likelihood that respondents would maintain riparian buffers, the majority of responses were having access to financial resources to help them plant and maintain buffers and learning how to maintain buffers for water quality were most likely to increase their riparian buffer maintenance. In addition, more than half of the respondents agreed that they would be more likely to maintain streamside buffers if they

SECTION 1 – LAND & WATER RESOURCE INVENTORY

could learn how to maintain streamside buffers for wildlife benefits and soil conservation. When asked what respondents thought about management actions to protect the quality of water in MN, on average, respondents rated expanding incentive-based programs that offer payments for conservation as most likely to protect the quality of Minnesota's water resources. The majority of respondents also believed that promoting voluntary adoption of conservation practices through education and outreach (65%), coordinating land use and water planning across communities (63%), and engaging more citizens in decision-making (61%) will be at least somewhat likely to protect water resources. (Davenport 2012)

Social Science Based Evaluation of Scott County's Technical Assistance and Cost

Share Program (TACS). The overall objective of this study was to survey TACS participants' perceptions of and experiences with Scott County's TACS program in order to answer a few questions for staff including:

- 1) What are program participants' experiences with and perceptions of the TACS program?
- 2) What are landowner's motivations for participating in the program?
- 3) What are landowner's perceptions of the practices implemented through the program?
- 4) How likely are they to enroll in the program in the future?
- 5) How do financial incentives (i.e., cost share) influence landowners' decisions to participate in the program?
- 6) What recommendations do landowners have to improve the TACS program?

In 2017, data were collected through a self-administered survey of 373 participants of Scott County's TACS program. The key findings from the study were:

- Overall, program participants are highly satisfied with various aspects of the TACS program and the service provided by the Scott SWCD staff;

SECTION 1 – LAND & WATER RESOURCE INVENTORY

- A majority of program participants are likely to work with SWCD staff in the future;
- Most program participants reported that the TACS program has inspired them to take conservation action;
- Program participants recommended that staff provide frequent feedback about the program, raise program awareness, reduce program complexity, and improve customer service (NRCS);
- The biggest drivers of the program participation appear to be environmental benefits of conservation practices, participants' emotional connection to the land, and conservation ethic;
- Availability of financial incentives was an important motivator for most respondents. A majority of respondents believed that they are receiving the right amount of financial assistance to install conservation practices and are willing to install practices again at the same level of financial assistance;
- The biggest constraints to water resource conservation appear to be lack of personal financial resources, equipment, community financial resources, and community leadership (Pradhananga, 2017).

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Section 2

PLAN DEVELOPMENT PROCESS

This section describes and documents the iterative process used to gather input from the public, agencies and other stakeholders. This information, along with watershed characteristics described in Section 1, was provided to Watershed Planning Commission (WPC), and the Scott Soil and Waters Conservation District (SWCD) Supervisors; who along with county and SWCD staff identified priorities. Simultaneously, staff worked with the Technical Advisory Committee to identify what “needs” to be done to address potential goals. Staff then completed a gaps analysis using the identified “needs” along with an assessment of the effectiveness of the current Plan. The end result was the identification of “issues” facing the SWMO. The resulting information became the basis for updating the SWMO vision, goals, priorities and guiding principles in Section 3.

Technical and social system information played an important role in making decisions. Most of this information is summarized one Section 1. SWMO in partnership with the Scott SWCD completed some recent inventories and assessments specifically timed to inform this planning process. Resulting documents are listed in Table 2.1 and are available on SWMO webpages at www.scottcountymn.gov/wmo.

Table 2.1. Recent SWMO Studies and Reports

Plan/Study Name	Organization
2015 SWMO Picha Creek Water Quality Monitoring Report	Scott WMO
2016 Roberts Creek Water Quality Monitoring Report	Scott WMO
Scott Watershed Management Organization – Scenario Based Planning Workshop, March 2017	Future iQ
Scott County Groundwater Report, August 2016	Jonathan Hess, Scott SWCD
Inspiring Action for Nonpoint Source Pollution Control, March 2017	Paul Nelson, Mae Davenport, Troy Kuphal
Analysis of Hydrologic Change and Sources of Excess Sediment in Scott County, MN; August 2017	Patrick Belmont, Shannon Belmont, Adam Fisher, Department of Watershed Sciences, Department of Environment and Society, Utah State University
2006-2016 Technical Assistance & Cost Share Program Summary, June 2017	Jonathan Hess, Scott SWCD

SECTION 2 – ISSUE IDENTIFICATION AND ASSESSMENT

Table 2.1. Recent SWMO Studies and Reports

Plan/Study Name	Organization
Social Science-based Evaluation of Scott County's Technical Assistance and Cost Share Program, June 2017	Amit K Pradhananga, Mae A Davenport, Center for Changing Landscapes, University of Minnesota
Memorandum: Metals sample data – Sand Creek and Credit River, October 6, 2017	Jonathan Hess, Scott SWCD Memoranda to Paul Nelson, Scott County

AGENCY AND PUBLIC INPUT

This subsection describes the process the SWMO undertook to solicit input.

Plan Notification Process

The SWMO initiated the plan development process on October 14, 2016 by notifying the designated state plan review agencies, municipalities, adjacent counties and watershed organizations, Scott County, and townships that it was starting the plan update process. Additionally, we were soliciting each plan review agency's priority issues or opportunities and management expectations for these issues; summaries of relevant water management goals for the next 10 years; and pertinent water resource related data, reports or other relevant materials. The SWMO received feedback from the Board of Water and Soil Resources, Minnesota Pollution Control Agency, Minnesota Department of Natural Resources, Minnesota Department of Agriculture, Metropolitan Council, Minnesota Department of Transportation, City of Belle Plaine, and the Prior Lake Spring Lake Watershed District.

Table 2.2 presents the responses received from the plan notification process.

Table 2.2. Plan Notification Responses

Agency/Organization	Goal Recommendations
Metropolitan Council	Include policies related to the protection of area water resources with the end goal of water sustainability. Include quantifiable and measurable goals and policies that address water quantity, water quality, recreation, fish and wildlife, enhancement of public participation, groundwater, wetlands, and erosion issues.
Board of Water & Soil Resources	Do a detailed gap analysis defining activities and regulations in the watershed; Continue to strive for the goal of informing cities of current or proposed WMO standards early for incorporation into their LWPs.

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Table 2.2. Plan Notification Responses

Agency/Organization	Goal Recommendations
Minnesota Department of Natural Resources	Goals should be addressed not as independent prescriptions, but as integrated activities strategically applied toward the improvement of the entire watershed system. Consider placing goals into a context of five aspects of watershed health: hydrology, biology, connectivity, geomorphology, and water quality. Include a goal and policies to address how rare species and native plant communities will be protected. Recommend the Plan provide more information regarding how the Natural Area Corridors map will be used by the WMO to protect areas identified in the Unique Features Sections.
Minnesota Department of Agriculture	Include a document that lists priority concerns, such as: Agricultural Drainage, Wetland & Water Retention, Ag Chemicals & Nutrients in Ground and Surface Water, Livestock & Manure Management, Ag Land Management, Targeting BMPs, Aligning Local Plans & Engaging Agriculture. Along with example action items for potential use in the Plan.

Stakeholder and Public Involvement

The SWMO held a number of meetings or “Community Conversations” over the course of a few months to engage as many participants as possible. Public meetings were held around the county to make it convenient for citizens to participate. Meetings on issues input were held on January 3, 2017 in Shakopee, January 4th in Belle Plaine, and January 9th in Spring Lake Township near Prior Lake. On February 8th the SWMO held a wrap up meeting to discuss results of the first three meetings and received input on the SWMO Vision statement. Starting in December through mid-February, an online survey was posted to the SWMO’s website, posted in the Scott County Scene which is distributed to every household in the county, posted on Facebook and the Next Door application, and emailed out to all township officials and local groups the SWMO works with annually. Overall, the SWMO received 46 responses to the survey, and eleven people attended the Community Conversation meetings. Information collected from the surveys was incorporated into the issues identification process. The online survey questions and participant comments can be found in Appendix A.

Additional input on the plan development process was sought from the following groups as described in Table 2.3.

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Table 2.3. Plan Input Meetings

Audience	Meeting Date	Meeting Goals	Number of Attendees
Technical Advisory Committee & Watershed Planning Commission	January 23, 2017	Official kick-off meeting of the Watershed Plan update. Identify issues that should be addressed in the 2018-2026 Plan, discuss whether the current Plan issues still apply, and prioritize issues for the next Plan. The meeting was published as a legal notice in the County's legal newspaper.	25
Groundwater Utilities partners	January 30, 2017	Goals of the meeting were to determine from partners what the SWMO role should be in groundwater; whether there were any data gaps; issues pending with regard to groundwater; and what would be useful to them	15
Scott County Departments (Emergency Management, Parks, Highway, Environmental Health, Planning)	March 3, 2017	Goals of the meeting were to discuss what the SWMO's role should be in collaborating with County departments on certain project or county needs; Public Values Incentives; changes in zoning and development to update our standards; opportunities with Highway to collaborate; bacteria impairments, partnering with Environmental Health; Parks projects	7
County Board	March 21, 2017	Present an update on results of public input collected to date on issues for the next Plan	12
Technical Advisory Committee & Watershed Planning Commission	March 27, 2017	Participated in a Future iQ workshop to discuss the future and changing dynamics of water and watershed management in Scott County. Plausible scenarios for the future were developed. Workshop ended with the group views on a preferred and expected future. This information will shape the vision statement and strategies in the Plan.	26

SWMO took the responses from the online survey and January 23, 2017 meeting and compared the responses to the issue statements in the current plan.

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SUCCESS OF PREVIOUS PLAN

As part of deciding how to move forward with an updated Plan the SWMO assessed the effectiveness of the previous Plan. This was completed in several ways. First, in 2015, the Board of Water and Soil Resources (BWSR) performed a Level II Performance Review through BWSR's Performance Review and Assistance Program (PRAP) of the SWMO. Second, the SWMO itself completes an assessment of progress on Plan implementation about every two to three years and as part of updating this Plan. Third, as part of the update process for this Plan the SWMO worked with its Technical Advisory Committee to complete a "Needs Assessment and Gaps Analysis." Results from each of these efforts are described briefly below.

BWSR's Performance Review and Assistance Program

In 2015, the Board of Water and Soil Resources (BWSR) performed a Level II Performance Review through BWSR's Performance Review and Assistance Program (PRAP) of SWMO's water resource management plan and overall organizational effectiveness in delivery of land and water conservation projects and programs. BWSR reviewed SWMO's reported accomplishments of management plan action items, determined the organization's compliance with BWSR's Level I and II performance standards, and surveyed members of the SWMO and their partner organizations.

General conclusions from BWSR were as follows:

"The Scott WMO can serve as an example of how a systematic approach to water management can be delivered. The WMO has a solid record of accomplishment in all areas of their water management plan. The WMO's compliance with BWSR performance standards puts them among the top performers in meeting the essential, administrative, planning and communication practices that lead to an effective, efficient organization. The responses of the WMO's partners reinforce these conclusions with high marks for communication, quality of work, relations with customers and follow through."

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BWSR offered two recommendations to enhance the SWMO service and delivery of water and land management.

- 1) **Consider using Prioritized, Targeted and Measurable criteria for Goals and Objectives in the next water management plan.** While the current plan identifies generalized resource outcomes, there are no measurable actions associated with those goals.
- 2) **Structure annual reports or website information to report progress and trends made in achieving resource outcome goals.** The current plan designates four out of seven goals in the water resource management plan as resource outcome goals. Efforts should be made in annual reports or on the SWMO website to share progress and trends made in achieving those resource outcome goals.

Self-Assessment

The SWMO identified both short and long-term metrics to assess progress toward each goal in the previous Plan. These metrics are tracked and reported every year in Annual Reports that are available on the SWMO webpages at <http://www.scottcountymn.gov/wmo>. In addition, the SWMO every few years has completed a programmatic assessment to ascertain how it is doing implementing the strategies and programs called for in the Plan. The following provides a listing of observations from these assessments.

- The SWMO has implemented almost all of the strategies called for in the previous Plan. The exceptions are a few studies that were not completed because connected actions by others were not initiated.
- The SWMO has been very successful at obtaining State of Minnesota Clean Water Fund, and MPCA/USEPA Section 319 grants.
- The SWMO has constructed or financially participated in the completion of 12 of the 15 Capital Improvement Projects (CIPs) identified in the previous Plan. Of the three remaining: one is no longer needed and was canceled, another is being delayed until landowners are ready, and the third was constructed but has failed and needs to be rebuilt.

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- A number of meaningful partnerships have been developed that enhance implementation in the watershed.
- All of the communities within the SWMO that are required to complete Local Water Plans have completed them and have had them approved by the SWMO.
- Technical Assistance Requests from landowners has increased as demonstrated by Figure 2.1.
- Landowners generally have a strong conservation ethic with over 675 conservation practices being implemented through the Technical Assistance and Cost Share program since 2006.
- Not many landowners have embraced wetland restoration as an acceptable practice.
- While the SWMO has identified potential regional runoff storage areas in the Credit River watershed, and the SWMO portions of the Sand Creek watershed it has not acquired and constructed facilities at any of the identified locations. There are two reasons for this: 1) they are expensive and cost prohibitive to complete as a CIP, and 2) dedication through development has not happened with the recession starting in 2009.
- A 60% reduction in Total Suspended Solids has been documented for the Credit River over the past 20 years and the river was removed from the Impaired Water list. However, more recent monitoring by the MPCA for the Watershed Restoration & Protection Strategy (WRAPS) has found that the aquatic community (fish and macroinvertebrates) is impaired and that the chloride standard is exceeded.
- McMahan Lake has improved such that it meets the standard for excessive nutrients and will be removed from the Impaired Waters List.
- Nutrients have declined in O'Dowd Lake and water clarity has significantly improved.
- Runoff yield has held steady in the Credit River and has decreased in Sand Creek.
- The SWMO has successfully partnered with the Cedar Lake Improvement District and MDNR to significantly reduce the impact of curly-leaf pondweed and improve native submerged plant diversity in Cedar Lake.

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- The SWMO has also worked with the O'Dowd Chain of Lakes Association to help minimize the impacts of curly-leaf pondweed on O'Dowd and Thole Lakes, and has completed modest treatments on McMahon Lake.

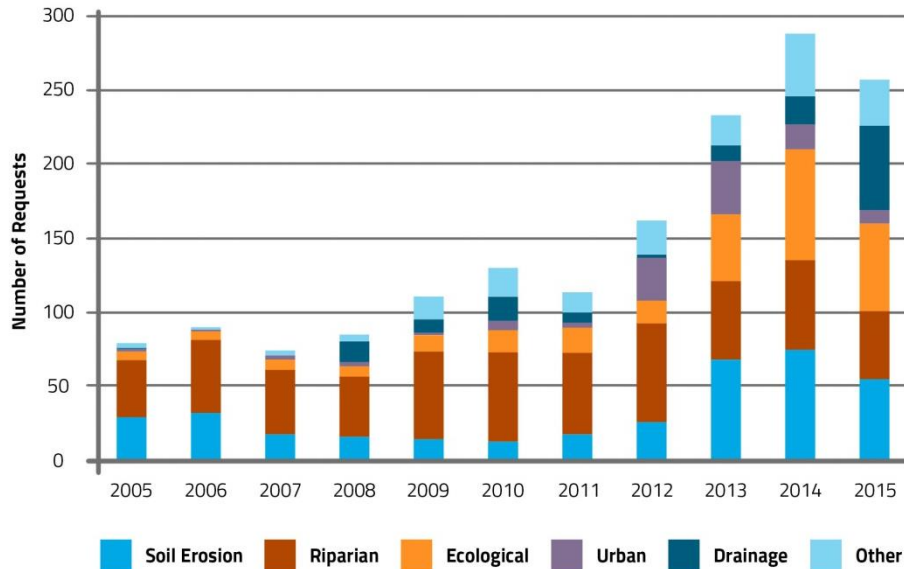


Figure 2.1. Landowner Technical Assistance Requests at the Scott SWCD

Review of the list above shows that the SWMO has pretty much implemented the previous Plan. In addition, the SWMO and its partners also had to work through the 2014 Disaster that caused a lot of damage particularly in the southwest portion of the SWMO. However, some results didn't materialize as expected, and while there are some positive trends, other trends are difficult to ascertain or slow to develop. For example, the SWMO and its partners have been relatively successful at constructing erosion control practices themselves, or enabling them to be installed by landowners in the Sand Creek watershed, improving trends in total suspended solids have yet to be demonstrated. Part of this is the technical rigor that is needed to complete trend analyses, and part is a reflection of the long time scales needed to get in place enough practices to offset decades of drainage and land conversation.

Needs Assessment And Gaps Analysis

The Technical Advisory Committee was asked to determine what needs to be done in order to meet preliminary draft Goals. The "needs" were then assessed as to whether current controls

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and strategies are adequate and whether there are management gaps. This analysis is included as Appendix B.

This analysis was difficult to complete because the decision on whether a gap exists is somewhat subjective, and effectiveness of existing programs may be uncertain. This uncertainty may in turn be a result of insufficient documentation of results, or a result of the long time frames needed to affect change. This presented a challenge in determining whether to stay or change the course with respect to some Strategies. In general, results of the analysis can be grouped into four general areas as follows:

- 1) Where existing programs by the SWMO or others are adequate and there is no gap.
- 2) Where programs are not in place or are clearly not adequate and there is gap.
- 3) Where programs are in place, but it is unclear whether there is a gap because effectiveness of current efforts is unknown or will take more time.
- 4) Where programs are in place, but more could be done and the determination of whether these efforts are adequate is subjective.

Results of the analysis were used to identify and refine Strategies described in Section 4.

Focus Areas (Issues)

This subsection identifies and describes issues facing the Scott Watershed Management Organization (SWMO). These issues were identified through the resource inventories described in Section 1, past studies, assessments of the effectiveness of the previous Plan, workshops and public meetings held during the preparation of the draft Plan. Issues listed are fairly comprehensive because of the multiple mechanisms used to solicit input.

Significant issues identified are listed below. Undoubtedly, there are additional issues that have not yet surfaced. They are largely the same as those listed in the previous Plan. The reasons for this are simple: 1) many of the issues are driven by physical characteristics and land uses in the watershed and these characteristics have not changed significantly; and 2) many of the issues are on-going and take time to resolve. New issues can be considered at monthly Watershed Planning Commission (WPC) and SWMO Board meetings as part of the on-going watershed management process.

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The following issues were identified through the planning process:

Issue 1: Deposition of till by glaciers and incision by the Minnesota River have created a geologic setting that is naturally highly erosive and very susceptible to increased erosion and mass wasting, where shallow lakes are predominant, and where terraces along the Minnesota River have shallow depths to bedrock and are highly susceptible to groundwater contamination.

Issue 2: The landscape of the watershed has been significantly altered by agriculture.

Issue 3: Stability of streambanks and aquatic habitat has been impacted by changes to streamside vegetation, channel alterations, ditching and wetland drainage.

Issue 4: Surface water quality is impaired.

Issue 5: Public awareness of water resource issues is limited, and a large number of citizens do not believe that they have the ability to implement conservation or that conservation will make a difference.

Issue 6: Urban development has altered the landscape and additional development is expected.

Issue 7: Localized flooding issues are a concern in Jordan, and lakes throughout the SWMO are experiencing high water levels and/or outlet issues.

Issue 8: Upstream portions of the Sand Creek Watershed and eastern areas of the Credit River Watershed are not in the jurisdictional boundary of the SWMO.

Issue 9: Cost of addressing all the water resource issues is undetermined and is likely high.

Issue 10: There are aquifers susceptible to groundwater contamination in the SWMO.

Issue 11: It is difficult to show the benefits of watershed based improvements over the short term.

A discussion of each issue is presented below. Many of the issues are interrelated. It is also important to understand that current impacts and impairments in the issues are a reflection of

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past and current activities in the watershed. Some of the issues are listed in anticipation of future activities in the watershed—namely urban development. The past activities include agriculture, urbanization, and wastewater management. As the watershed changes in the future, it is anticipated that agricultural land will be converted to urban land uses. However, agriculture will continue to be a significant land use in the watershed and must play a role in managing current impacts and impairments.

Issue 1: The incised Minnesota River valley and glacial till have created a geologic setting consisting of tributary rivers and streams (i.e., Sand Creek and Credit River, etc), bluffs and ravines that are naturally highly erosive, and very susceptible to increased erosion and mass wasting. Recent geologic history (i.e., past 10,000 to 20,000 years) has created the physical characteristics in which the SWMO is now operating. These characteristics greatly affect how water resources respond to human alterations, and the efficacy of management efforts. Glaciers, with the Des Moines Lobe being the most recent, deposited till creating an upland glacial plain with numerous potholes and shallow lakes. The draining of Glacial Lake Agassiz and creation of River Warren then cut through this till forming the Minnesota River Valley leaving shallow depths to bedrock in the valley, steep bluffs, and tributary ravines and streams with steep gradients. These ravines and streams are still actively incising, and are very sensitive to landscape and hydrologic alterations. The conclusion is that:

- The geologic setting affects the natural condition of water resources. For example, lakes within the SWMO are all shallow, and shallow lakes are naturally more productive or eutrophic than deep lakes; and streams where they are more steep and are actively incising will carry more sediment; and,
- Makes them more susceptible to impact. For example, shallow lakes do not vertically stratify meaning that nutrients entering these lakes and accumulating in bottom sediments have a greater potential for recycling and accelerating eutrophication.

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Issue 2: The landscape of the watershed has been significantly altered by agriculture. A majority of the land in the SWMO is in agricultural production (38%). Agriculture has been and remains a valuable economic activity in the watershed and a livelihood for many families. However, the process of making the land productive for agriculture has led to water quality issues. Clearing the land and conversion to row crop agriculture, the use of fertilizers and pesticides, and the completion of drainage practices such as wetland drainage and ditching, have increased the nutrient concentrations in receiving waters, have improved the efficiency of surface runoff from the land, and increase erosion and sedimentation. Not only has the land cover been altered, but in many cases stream morphology and drainage infrastructure have been changed. Minnesota agriculture depends upon an immense network of public drainage systems. These systems are called “ditches”, but they encompass open ditches, trapezoidal open trenches and underground tile systems. From the latter part of the nineteenth century through the 1950’s, Minnesota law encouraged expansion of the public drainage system. Currently, there are 54 miles of county ditches throughout the SWMO (Map 2). Public ditches are administered by “Drainage Authorities.” These practices make it more efficient to farm, but unfortunately they also make it more efficient for nutrients and sediment to reach water bodies, and increase the energy of flow in streams. In Scott County the Drainage Authority is the County. In general Scott County is growing and developing, and the agricultural producers benefiting from existing ditches is slowly declining. However, the county does not have a vision for future management of the ditch system given the decreasing benefits.

Issue 3: Stability of streambanks and aquatic habitat has been impacted by changes to streamside vegetation, channel alterations, ditching and wetland drainage. In 2007, the SWMO initiated fluvial geomorphic assessments of the Sand and Credit Rivers to diagnose the causes of the accelerated stream bank erosion. Fluvial geomorphology is the study of how water related landscapes form. The studies indicate that the accelerated erosion is likely due to the high susceptibility (see **Issue 1: The incised Minnesota River valley and glacial till have created a geologic setting**

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consisting of tributary rivers and streams (i.e., Sand Creek and Credit River, etc), bluffs and ravines that are naturally highly erosive, and very susceptible to increased erosion and mass wasting.) in combination with drainage practices that have increased runoff and energy in the stream, and to practices that have ditched or straightened the stream in combination with changes to stream-side vegetation and a reduction in buffers. Most of the head waters of Sand Creek (outside of the SWMO) in Rice and Le Sueur Counties have been ditched, and there are more than 200 miles of private and public ditches throughout the SWMO. In addition there are 10s of thousands of acreages of drained wetlands in Scott County alone per the SWCD drained wetland inventory.

Streambank erosion is important to consider since it damages private property, potentially threatens infrastructure, and may be one of the factors contributing to water quality impairment for turbidity in Sand Creek. Dr. Schottler's (2002) research on Raven Stream (a tributary to Sand Creek) found that erosion of streambanks accounted for greater than 70% of the total suspended solids (TSS) measured during eight storm events in 2000 and 2001. For individual events, streambank erosion was estimated to contribute 45—95% of suspended sediment loading. Tile drainage networks and runoff from fields with perennial vegetation were determined to have negligible direct sediment inputs to the creeks in this study. However, the study also concluded that flow from tile outfalls increases the flashy nature of the stream hydrograph and exacerbates streambank erosion.

Ditching and wetland drainage practices have also affected aquatic habitat and wildlife. Channelization and ditching of streams removes much of the complex in-stream habitat such as riffles and pools. Draining of wetlands changes the hydrology and ability of the wetlands to support aquatic plants that in turn support aquatic wildlife. Alteration of habitat may be a contributing factor to the fish Index of Biological Integrity (IBI) impairment found in Sand Creek and the unnamed tributary to Sand Creek described in the impaired waters issue below. In conjunction with the fluvial geomorphic assessment

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the SWMO also initiated an assessment of aquatic habitat in Sand Creek and the unnamed tributary.

Issue 4: Surface water quality is impaired. Portions of the Minnesota River, Sand Creek and its tributaries and a number of lakes in the SWMO are on the Minnesota Pollution Control Agency (MPCA) 303(d) 2016 list of impaired waters and the 2018 list is expected to grow (Table 1.7, Section 1). As discussed in Section 1, staff of the SWMO believes this is not due to conditions getting worse; rather there are new standards being used, and more monitoring being completed. Where trend data is available, they generally show no trend or improving trends, the exception is nitrates. The WRAPS study and associated TMDLs are not complete for the Lower Minnesota River Basin as of the publication of this draft Plan. The SWMO knows that additional details are coming and it anticipates completing a plan amendment to refine the Plan accordingly. In the interim the SWMO has used draft work products from the MPCA and preliminary draft listing documents as much as possible to inform this Plan. The SWMO also has a number of its own studies that inform the goals and strategies in this Plan.

Issue 5: Public awareness of water resource issues is limited, and a large number of citizens do not believe that they have the ability to implement conservation or that conservation will make a difference. Public awareness of watershed issues has increased significantly in recent years. The efforts of the SWMO, Scott SWCD, University of Minnesota Extension Service—Scott County (Extension), Friends of the Minnesota River Valley, the Minnesota Department of Natural Resources (MDNR), and the Metropolitan Council have increased awareness. However, many residents and local officials remain unaware that they live in a watershed, and that what they do on the landscape affects water quality and flow in the Minnesota River and streams in the SWMO. Many residents are also unaware of the SWMO, and the Watershed Management Board’s authority, responsibilities and roles.

In addition, surveys completed by the SWMO in partnership with the University of Minnesota Center for Changing Landscapes has found that one of the main reasons that riparian landowners along Sand Creek do not implement conservation is that they

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believe that they do not have the ability. Other surveys completed by the Center for Changing Landscapes in other settings have reinforced this finding—that self-efficacy is a major limiting factor for landowner implementation of conservation. It is also documented in the literature that landowners need to believe that their efforts will make a difference.

Issue 6: Urban development has altered the landscape and additional development is expected. With the completion of the draft 2040 Comprehensive Land Use Plans for the County and the Cities in the SWMO, additional development is expected (see the 2040 planned land use map online, <https://www.scottcountymn.gov/439/2040-Comprehensive-Plan>). An additional 1,667 households in the eleven townships are anticipated between 2010 and 2040. Additional commercial and industrial development is also anticipated in the incorporated areas of the SWMO, and along the Hwy 169 corridor. This additional urban development will affect water resources by changing the land cover and surface hydrology; increasing groundwater demand; increasing wastewater; increasing recreational needs; and transitioning from an agricultural to an urban infrastructure. These are discussed separately in the following text.

Changing the Land Cover and Surface Hydrology. Development significantly changes local surface drainage patterns. Impervious surface covers soils that would otherwise infiltrate water, and natural drainage ways are replaced with storm sewers, paved channels, ditches, and other artificial drainage devices. Impervious surfaces and artificial drainage increase the volume and accelerate the rate of surface runoff reaching receiving waters. The effects of higher runoff volumes and rates on water resources are higher flows, flooding, erosion, and adverse impacts on aquatic habitats (Vermillion 2005).

In addition to changing the hydrology in an area, development also increases the potential for pollution of water resources. Because the human population is concentrated, more materials are manufactured, consumed, and disposed of in developed areas. Not only is the number of possible pollutants increased, but also the opportunities for them to be released into the environment. Large

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quantities of wastewater and solid waste are generated in developed areas that must be treated and/or disposed. Construction sites disturb land and can result in substantial erosion. Erosion rates can be 20,000 to 40,000 times higher at construction sites than vegetated areas. After construction, impervious surfaces are likely places for the deposition of contaminants from vehicles, industry, lawn care, pets, sediment, organic litter (e.g. grass clippings), and trash. These contaminants are more likely to reach water resources because there is more surface runoff to transport pollutants and there are fewer natural filtration systems (like vegetation and wetlands) to remove pollutants (Vermillion 2005).

Additional Groundwater Use. Urban and rural areas in the watershed use water from local aquifers to supply residents and businesses. A majority of the land use in the watershed is agricultural in nature and will remain so into the 2030s. Met Council's 2015 Master Water Supply Plan and their regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand.

Additional Wastewater. Additional development means increased wastewater. Currently the wastewater treatment facilities serving the cities of Jordan, Belle Plaine, and New Prague discharge within the SWMO. The cities of Elko New Market, Prior Lake, Savage and Shakopee are served by facilities with discharge points located outside the SWMO. Unincorporated areas outside the cities are served by on-site systems. The exception is the area around Cedar Lake which is served by sanitary sewer. The Cedar Lake Sanitary Sewer District provides sewer service for residents around the lake and is connected to the City of New Prague system and treated at the New Prague wastewater treatment facility. There is also one waste water treatment facility outside the Scott WMO but in the Sand Creek watershed. These serve the City of Montgomery in Le Sueur County.

Increased Recreational Needs. The landscape and water resources of the watershed provide important recreational value. With increasing development and population in the watershed, demand for water-based recreation will

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increase. Comments from the MDNR and the public in Scott County raise concerns about the hunting opportunities fading on lakes and wildlife management areas as development increases. Citizens have also expressed interest in fishing pier access or onshore fishing stations on lakes that do not have them. There is also lack of canoeing opportunities to the general public.

Transition from an Agricultural Infrastructure. Currently much of the SWMO is served by a drainage infrastructure developed to support agriculture. With transition to a more urban environment, there potentially is an increase in localized flooding and stream bank and gully erosion with the higher rate and volumes of runoff associated with urban areas. Under its first plan, SWMO has instituted rules for new development to control these issues. However, there are a number of public ditches in the SWMO that may not be the best infrastructure for an urban environment.

Drainage ditches are administered for the private economic benefit of landowners. For this reason, generally the funds to maintain a drainage ditch must come entirely from assessments, and not from taxes. This is an important principle, and may be in an urban setting with numerous land owners. When a ditch is first established, the drainage authority must determine which lands will receive an economic benefit from the proposed system. The economic benefit is measured by determining the increase in the value of the lands affected by the new system. The Drainage Authority then creates a benefits ledger, which establishes the initial benefits for each parcel of land. All expenses of the authority are assessed out to the benefited parcels in proportion to that parcel's proportionate share of the total benefits. As the county becomes more developed, the need for ditches to help maintain agricultural productivity will decrease, and the benefits to agriculture will decrease.

Issue 7: Localized flooding issues are a concern. There are several known localized flooding areas or areas of concern located in the SWMO, and there are also some potential risks that are unknown. These fall into the following general areas.

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- There are several areas along the Trunk Highway 169 corridor with flooding and poorly defined drainage paths. There is a known landlocked drainage area located near the intersection of TH 169 and TH 41 with a relatively large area of commercial development draining to it. Continuing development pressure in the area continues to be problematic. In several areas along TH 169 from Shakopee to Jordan, there are large drainage areas without well-defined paths to reach the Minnesota River. One such area is located near the Dem-Con Landfill and Byron Red Rock Quarry. Flows from the adjacent bluff areas collect and at times affect business adjacent to the landfill and quarry. Flows then proceed into adjacent gravel mining properties with no defined drainage paths. The current TH169 corridor project by Scott County (planned for construction starting in 2018) is designing stormwater to serve road improvements in this area that may also address some of the issues, but the project purpose is transportation and is not obligated to solve the long-term stormwater issues. There are also pending expanded mining operations that will affect the area and associated drainage.
- The City of Jordan has a number of homes and businesses affected by the floodplain of Sand Creek and new Flood Insurance Rate Maps are pending. The Army Corps of Engineers has completed some studies in the past to find ways to alleviate some of the risk, and the City more recently has asked for support from the SWMO for additional analysis.
- Increasing precipitation has caused issues with high water levels and discharge structures on some of the lakes in the SWMO. These include Clarks, Cleary, Thole, and McMahon Lakes. Repairs to the Clarks and Cleary Lakes outlet structures are scheduled for 2017 or 2018. Thole Lake levels and water levels along its outlet flow path continue to be a long-term issue. McMahon Lake does not have an outlet, and water levels were high throughout most of 2017 affecting the boat access, and shoreline erosion.
- Much of the SWMO has been studied to map floodprone areas, and municipal Local Water Plans have analyzed and planned the stormwater infrastructure.

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However, precipitation has been increasing, and most analyses assume unobstructed flow. Thus, there could be flooding in areas where not anticipated by various studies due to larger than planned storms or issues or debris/sediment buildup blocking or slowing flow. Debris and sediment accumulates where an issue blocking bridges or stormsewer inlets at several locations during the 2014 disaster.

Issue 8: Upstream portions of the Sand Creek Watershed and eastern areas of the Credit River Watershed are not in the jurisdictional boundary of the SWMO. There are significant areas of both the Sand Creek and Credit River watersheds that are not within the jurisdictional boundary of the SWMO. This creates management issues. Credit River Watershed areas (i.e., the Orchard Lake subwatershed) in Dakota County are under the jurisdiction of the Black Dog Watershed Management Organization (Black Dog WMO). The areas in the Black Dog WMO are relatively small; in the thousands of acres. This is much more problematic for the Sand Creek Watershed where about 30 to 40 percent of the watershed is in Le Sueur and Rice Counties, and is not part of the SWMO. These areas are also outside the seven county Twin Cities region and are not subject to Minn. Stat. Chapter 103B. This issue is made more acute because the areas in Le Sueur and Rice Counties are the headwaters of Sand Creek.

Issue 9: Cost of addressing all the water resources issues is undetermined and is likely high. The number and extent of the issues facing the SWMO, described above, are extensive. Furthermore, the total cost of addressing all these issues is undetermined. This is due to a number of reasons including the complexity of the issues, the high degree of alteration that has occurred to the landscape and the resources of the watershed, the fact that water resource sciences are still evolving, lack of past investment, the changing nature of the watershed (i.e., conversion of agriculture and open space to urban), and an incomplete understanding of the resources. In addition, State climatology records indicate that Minnesota is becoming warmer and wetter. Ice cover on lakes is forming later and melting sooner, severe storms increase the amount of pollutants that runoff from land to water, warmer water tends to cause more algal

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blooms which can be harmful to humans and pets, harm fish, and degrade water quality. The severe storm events of June 2014 caused flooding in many areas and affected homes. This uncertainty brings up a number of additional questions such as:

- Is the current tax to SWMO residents fair, and is it enough to bring the watershed into measurable environmental improvement in the next 8 years, or is it too much?
- As the SWMO continues to develop a capital improvement plan for the next 8 years, what is a reasonable cost and benefit to the residents of the SWMO?
- What is the appropriate balance between investing in prevention versus restoration?
- Are costs distributed equitably between existing and developing land uses?
- With current funding approaches, should or are benefited land owners paying more?
- How do we prioritize to build greater resilience to extreme precipitation that protects land and infrastructure?

Issue 10: There are aquifers susceptible to groundwater contamination in the SWMO. As discussed in Section 1, there are areas of the SWMO where the soils have very fast infiltration rates and the bedrock is relatively shallow. These areas tend to be in the northern and northwestern parts of the SWMO near the Minnesota River, and have been identified as areas susceptible to contamination (see online in ScottGIS3).

Issue 11: It is difficult to show the benefit of watershed based improvements over the short term. Benefits of watershed based improvements are rarely immediately observable in terms of improved water quality improvements and flood reductions. The exception is wastewater discharge improvements where receiving water improvement can sometimes be rapidly seen depending on the level of the improvement and the magnitude of the discharge, compared to the capacity of the receiving water. There are

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a number of reasons why it is difficult to show improvement over the short term. They include:

- 1) The scale of change causing the impact may be large, or the impact itself is large and it takes time to affect a change.
- 2) There is a significant amount of natural climate variation that makes it hard to detect changes.
- 3) It may take a number of years before changes can be statistically detected.
- 4) The science of water quality and watershed management is still developing and evolving.
- 5) New or changing conditions effect management practices or may be simultaneously working to counter the watershed based practices.
- 6) Nonpoint source pollution impacts, and stream bank stability problems are frequently the result of cumulative impacts of numerous small changes in the watershed.
- 7) Frequently, the goal is to preserve existing conditions and prevent further degradation. It is difficult to demonstrate the fact of no change over a short time period, and for the public to understand the value of a neutral accomplishment.

The bottom line of this issue is that it is sometimes difficult to demonstrate progress and return on investment to the public and to decision makers.

Section 3

INTRODUCTION

This section of the Plan presents the overall vision, basic guiding principles, goals and policies for water resource management in the Scott Watershed Management Organization (SWMO) through the year 2026. The intent is to convey the basic management philosophy of the SWMO around which this Plan is structured.

PRIORITIES

The vision, principles, goals and policies identified in this section were the results of a decision process that characterized the watershed as described in Section 1, solicited input from the public and others and identified issues as described in Section 2, and included a discussion of priorities. Input from the public process brought forth some common directional themes of concerns from the public that were similar to the issues that were ultimately identified in Section 2. These themes along with watershed characterization information were reviewed with the Watershed Planning Commission and the Scott SWCD Board of Supervisors prior to discussing priorities.

The Watershed Planning Commission (WPC), the Scott SWCD Board, the Scott County Commissioner assigned as the liaison to the WPC, and staff participated in a prioritization workshop on August 28, 2017. At this workshop three different areas affecting management decisions were ranked. These included Resource Outcomes, Pollutants, and Waterbody Attributes. The method used to identify and discuss priorities in the group setting was Ordinal Ranking. A detailed summary of the workshop is attached as Appendix C. The following provides a summary of the results.

Table 3.1. Watershed Resource Outcomes

Outcome	Score	Ranking
Human Health & Safety	82	1
Groundwater Protection	76	2
Soil Health	64	3
Surface Water Quality Protection	59	4

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Table 3.1. Watershed Resource Outcomes

Outcome	Score	Ranking
Terrestrial Habitat	33	5
Flooding	31	6
Surface Water Quality Restoration	27	7
Aquatic Habitat	14	8
Aquatic Biota	4	9

Table 3.2. Surface Water Quality Pollutants

Pollutant	Score	Ranking
Toxics/Metals	67	1
Bacteria	60	2
Nutrients	47	3
Sediment/TSS	28	4
Chloride	24	5
Fish IBI	14	6
AIS	1	7

Table 3.3. Waterbody Attributes

Attribute	Score	Rank
Contributes to drinking water aquifer	166	1
Waters contributing high pollutant loads downstream	139	2
Prevention	136	3
Listed on 303d Impaired Waters List	135	4
Restoration	110	5
Data trends indicate water quality is degrading	105	6/7
Likelihood of achieving demonstrable results	105	6/7
Has local citizen financial support/partnership	90	8
Habitat is degraded	65	9
Is the action specifically identified in a study?	60	10
Is a TMDL complete?	53	11
Has AIS infestation	42	12
Other state identified category of high quality water (i.e., Outstanding Resource Water)	31	13
Has Public Access	24	14
Waterbodies with no current data	4	15

Outcomes on Table 3.1 are not mutually exclusive. Having good aquatic biota may be a function of having good soil health or good aquatic habitat. So for some of the participants of the prioritization: those outcomes that are a result of the other functions may have been ranked higher, depending on the participant.

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As shown in Table 3.1, aquatic biota was ranked the lowest. Participants generally agreed that the low ranking was due to a belief that a healthy biotic community is a result of the other outcomes. In other words “cause and effect” from other things on the list that if addressed would positively affect aquatic biota. **Human Health and Safety** was ranked the highest. **Groundwater Protection** was ranked second highest, probably because that’s where we get our drinking water. **Protection** was more important than **Restoration**. It’s typically less expensive to protect something than it is to fix or restore it. **Terrestrial Habitat** scored fairly high, probably because we have a lot of it in the SWMO and its more of a cause and effect issue, protect terrestrial habitat and erosion and the other outcomes will improve.

Table 3.2 on Surface Water Quality Pollutants prioritization shows **Toxics/metals** ranked number one & **bacteria** second. Discussion by the participants speculated that this was because they are both more of a human health and safety impact view. **Nutrients** was third, because the group saw it as a pervasive issue and that is something within our control.

Table 3.3: Waterbody Attributes ranking shows **Contributes to groundwater aquifers** ranked as the highest priority. The group indicated that whatever actions are planned, they do not want them to negatively affect the groundwater aquifer. Historically WMOs have been surface water focused. Group participants indicated because we have good groundwater quality, we always have to be conscience of that as one of the most critical resources; lakes are secondary to groundwater aquifers. Whatever we do, consider its impact on groundwater. **Waters contributing pollutant loads downstream** ranked second and was valued higher than, **Listed on Impaired Waters**, rather than that waterbody being specifically listed as impaired. **Prevention** is ranked high and if parameters are meeting standards and participants indicated it was important to preserve that condition. Having a TMDL completed for a water body was scored rather low. In discussion with the group, it was determined that this was due to a preference for implementation versus additional study and planning. In other words, participants felt that enough information was generally available to make informed decisions and start implementation without having to wait for TMDLs to be completed.

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Bottom line with respect to priorities is:

- 1) The protection of Human Health and Safety particularly with respect to both
 - a) groundwater protection, and
 - b) exposure to toxics and bacteria in surface waters
- 2) Protection and prevention are a higher priority than restoration.
- 3) Improving underlying factors like soil health are a priority because they ultimately affect water quality.
- 4) Using available information to get started on implementation is preferred to postponing action pending additional study and planning.

Some of these priority directions are new to the SWMO and change will not be immediate. Nor does this mean that the SWMO will completely drop efforts that currently focus in other areas or pollutants. For example, the previous plan had a Sand Creek sediment reduction strategy. The SWMO intends to see this and other strategies through, but will use this Plan to begin to shift more resources to the above priorities.

OVERALL VISION AND GUIDING PRINCIPLES

The SWMO's goals embrace an overall vision, which is:

"To compile a system of well-buffered water courses, wetlands and lakes surrounded by an upland where engaged citizens, businesses and partners work with the SWMO to reduce runoff volumes, control peak flows and their timing, and minimize pollutant generation and export to meet local water resource priorities."

This vision and the following goals, and policies, as well as the strategies presented in Section 4 were developed based on the following Guiding Principles. These principles are in large part driven by the understanding that the SWMO does not have the capacity or resources to achieve desired outcomes on its own.

- 1) Achieving desired water resource outcomes is a shared responsibility between state and local government and the public.

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- 2) Available resources will be focused on achieving priorities with realistic expectations.
- 3) Using, building on, and/or enabling existing management programs before initiating new or duplicative programs.
- 4) Building, sustaining, and utilizing partnerships are the preferred means of achieving goals and priorities.
- 5) Building capacity of individuals, communities, and organizations to implement conservation is needed to achieve results in a long term and sustainable manner.
- 6) Emphasizing prevention by creating a buffered and resilient aquatic environment; utilizing tools and programs aimed at promoting soil health; reducing runoff volumes and peak flows; and keeping homes, businesses and infrastructure out of harm's way (i.e., areas at risk of flooding and landslides).
- 7) Measuring, adapting and learning while implementing.

In addition to the principals and the emphasis on partnering the SWMO also wants to be clear as to when it will participate with others on projects and programs. Table 3.4 defines level of SWMO participation, and provides examples. These levels are referred to in Section 4 to help define levels of support by the SWMO for various strategies.

Table 3.4. SWMO Levels of Participation and Support

Level of Participation	Examples
Level 1. Projects the SWMO considers high priority and is willing to lead, finance or provide incentives.	Tier 1 Capital Improvements Projects (CIPs), and practices where landowners are giving up income or uses, or taking a increased risk to benefit the public (filter strips, native prairie plantings, cover crops).
Level 2. Watershed based practices that the SWMO considers a priority and is willing to share the cost, and contracts with the SWCD to lead.	Practices like grade control, where both the public and the landowner benefit.
Level 3. In-water projects that the SWMO considers a priority and is willing to cost share, but feels there is a shared responsibility. These can be lead by either the SWMO or a partnering agency/group.	Internal loading and in-water projects where others share responsibility (Aquatic invasive species control, carp control, in-stream or in-lake habitat, and alum treatments).
Level 4. These are projects that the SWMO is willing to support technically and financially, but will not lead implementation.	Tier 2 CIPs where the proposed project supports the goals of the SWMO but most of the benefit is local.

GOALS AND POLICIES

Goals are an outcome desired by the SWMO. Policies express the intent of the SWMO with respect to achieving a goal. The SWMO has eight goals as articulated in Table 3.5. Five of these are resource based outcomes, and three have operational outcomes. Each goal, along with its associated policies, is then described in detail. In general, they are similar to those adopted in the previous Plan.

Table 3.5. SWMO Goals

Resource Outcomes	Operational Outcomes
Goal 1: Wetland Management. To protect and enhance wetland ecosystems and ensure/encourage a measurable net gain of wetland functions and acreage	Goal 5: Collective Action. To engage the public in ways that inspires them to be willing partners
Goal 2: Surface Water Quality. To protect and improve surface water quality	Goal 6: Public Investment. To optimize public expenditures and promote efficiency
Goal 3: Groundwater Management. To protect groundwater quality and supply	Goal 8: Public Drainage. To create and enable a long term vision for County Ditches
Goal 4: Flood Management. To protect human life, property, and surface water systems that could be damaged by flood events	
Goal 7: Resiliency. To build a resilient landscape	

Goal 1: Wetland Management. To Protect And Enhance Wetland Ecosystems, And To Ensure/Encourage a Measureable Net Gain Of Wetland Functions And Acreage

This is the same as goal 1 and associated policies in the previous Plan. It is continued because it is consistent with priorities and preventative in nature. Wetlands provide a variety of functions and values which are important to the overall character and function of a watershed. Functions are physical, chemical and biological processes that take place within a wetland system. Values are the social and economic benefits that wetland systems provide to the general population. Examples of functions include water storage, flood desynchronization, nutrient retention and transformation, wildlife and aquatic habitat, groundwater recharge and discharge areas, and influence on atmospheric processes.

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Past wetland drainage plays a key role in the issues facing aquatic resources in the SWMO. As discussed in Sections 1 and 2, there are thousands of acres of drained or partly drained wetlands and miles of ditches in the SWMO. This contributes to increased and accelerated runoff as flood storage areas are lost and drainage efficiency is improved. These changes are in turn thought to be a contributing factor to Issue #3 (stream bank stability and loss of habitat) and #4 (surface water quality impairments) as discussed in Section 2. Nutrient retention/reduction functions are also an important function of wetlands. Some wetland types are very effective at denitrification. This function is particularly important in the southwest portions of the SWMO where monitoring of Ditch 10, Roberts Creek and the Blakeley ravines have shown high nitrate levels. Because of the value of wetlands to watershed functions, it is important to both protect and enhance or restore wetlands to prevent further degradation of these functions, enhancement and restoration to address Issues #3 and #4, and improve conditions and help achieve SWMO Goals 2, 4 and 5.

The importance of wetland restoration is further documented in the Sand Creek Impaired Waters studies completed by the SWMO in July, 2010 (SWMO, 2010a and b). These studies showed that wetland restoration was one of the most effective practices for reducing sediment and addressing the turbidity impairment in the creek. However, the reality learned through implementation of the previous Plan is that wetland restoration is frequently a tough sell with private land owners. Wetland restoration was prioritized under the previous Plan, with very limited success. Efforts to restore wetlands under this Plan will be continued, but on an opportunistic basis and with modest expectations.

Protecting and persevering wetlands fared better than restoring them under the previous Plan. Kloiber and Norris (2017) found a small net gain of wetland acreage statewide from 2006 to 2014. There is not an estimate for just the SWMO. However, experience from local development reviews and permitting is consistent with the findings of Kloiber and Norris. Estimates for Scott County are that for non-exempt impacts the number of acres impacted are being offset by a similar volume of acres being mitigated using bank credits within the County. "Exempt" impacts, however, are resulting in a loss of a little over one acre per year (Personal Communication, Troy Kuphal, Manager Scott SWCD February 7, 2018). This stemming of

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wetland loss is due in large part to the Wetland Conservation Act (WCA) and efforts by the Scott SWCD and local LGUs responsible for implementing WCA (Table 3.6). In addition, all of the local units of government responsible for implementing Local Water Plans completed them with the inclusion of the SWMO standards for protecting wetlands from impacts caused by stormwater runoff.

Table 3.6. WCA LGU Roles in Scott County (as of 1/11/2018)

LGU	Administrator*	Decision Authority by Application Type			
		No-Loss	Exemption	Boundary/ Type	Replacement Plan
Belle Plaine Township	SWCD	SWCD	SWCD	SWCD	Township
Blakeley Township	SWCD	Township	Township	Township	Township
Cedar Lake Township	Consultant	Township	Township	Township	Township
Credit River Township	Consultant	Township	Township	Township	Township
Helena Township	SWCD	SWCD	SWCD	SWCD	Township
Jackson Township	SWCD	SWCD	SWCD	SWCD	Township
Louisville Township	SWCD	SWCD	SWCD	SWCD	Township
New Market Township	SWCD	SWCD	SWCD	SWCD	SWCD
Sand Creek Township	SWCD	SWCD	SWCD	SWCD	SWCD
Spring Lake Township	SWCD	SWCD	SWCD	SWCD	Township
St. Lawrence Township	SWCD	SWCD	SWCD	SWCD	Township
City of Belle Plaine	Consultant	City	City	City	City
City of Jordan	Consultant	City	City	City	City
City of Prior Lake	Consultant	City	City	City	City
City of Savage	City	City	City	City	City
City of Shakopee	Consultant	City	City	City	City

* Generally, the role of the Administrator includes processing applications, performing technical reviews, making approval recommendations, and reporting

The following policies continue advancing the goal of protecting and enhancing wetlands. They are designed to address the management gaps prioritized in Section 2. In addition, protection, enhancement, restoration and buffering of wetlands is consistent with the overall green infrastructure vision, and is less costly than providing the same functions with artificially constructed systems.

Policies with respect to goal 1 include:

- Policy 1.1: Preserve Wetlands (no net loss) For Water Retention, Recharge, Soil Conservation, Wildlife Habitat, Aesthetics, and Natural Enhancement of Water Quality.
- Policy 1.2: Protect Wetlands from Impacts Caused by Stormwater Runoff

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- Policy 1.3: Enhance and Restore Wetlands

Detailed strategies are presented in Section 4.

Goal 2: Surface Water Quality. To Protect And Improve Surface Water Quality

Surface water is an important resource in the SWMO. Failure to address water quality issues can lead to impairment of water resources and can affect recreational uses, aquatic habitat, wildlife, groundwater quality, and other water use activities. In fact, numerous water bodies in the SWMO are already listed as impaired and more listings are pending. Issue #4 “Surface Water Quality is Impaired” described in Section 2 reflects this reality. Prioritization discussions summarized at the beginning of this section show that protection and prevention are a higher priority than restoration. However, the reality is the most water bodies in the SWMO are impaired for one thing or another already.

Under the previous Plan efforts focused on protecting water quality through the adoption of standards for new development, and improving water quality where it is impaired. For streams the focus was reducing sediment, while for lakes it was phosphorus.

The following policies continue the development standards focused on prevention, and previous efforts with respect to sediment in streams, and phosphorus in lakes; but also provide an increased focus on toxics (particularly chlorides) and bacteria, and on efforts like soil health that build a resilient landscape (See goal 7: Build a Resilient Landscape). There is also a policy with respect to improving the understanding of water quality challenges so that informed decisions can be made. The policies and strategies under Goal 1 above, that preserve, restore, and enhance wetland water quality functions or restore geomorphic processes such as flood storage in wetlands are also part of the overall SWMO process for addressing water quality.

Policies with respect to goal 2 include:

- Policy 2.1: Promote a Sustainable Systems of Buffers and Green Infrastructure
- Policy 2.2: Prevent Further Degradation
- Policy 2.3: Address Impaired Waters and Improve Water Quality
- Policy 2.4: Improve Understanding of Water Quality

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- Policy 2.5: Coordinate with other agencies and water quality programs
- Policy 2.6: Promote Source Protection

Detailed strategies are presented in Section 4.

Long-Term Numerical Water Quality Goals. In general, the intent of these policies and the goal is to preserve unimpaired water bodies, and restore impaired water bodies such that they meet state standards or the appropriate condition for the region. All of the natural lakes in the SWMO are shallow and subject to the standards for North Central Hardwood Forest (NCHF) Ecoregion as shown in Table 3.7. Cedar Lake, while also shallow, is not a natural lake, having had significant alterations made to its depth and watershed. For Cedar Lake, the SWMO's opinion is that trying to meet the Western Corn Belt Plains (WCBP, also shown in Table 3.7) standard is a reasonable goal. If that can be met without the lake becoming useable due to submerged aquatic plant growth, the SWMO will consider a more aggressive goal.

Table 3.7. Long Term Water Quality Goals for Natural Lakes

Parameters	Ecoregions	
	North Central Hardwood Forest (NCHF)	Western Corn Belt Plains (WCBP)
Total Phosphorus (ug/L)	60	90
Chlorophyll-a (ug/L)	20	30
Secchi Disk Transparency (meters)	>1	>0.7

For Rivers and Streams, again the goal is to meet state water quality standards in MN Rule 7050 or the appropriate water quality condition for the region as shown in Table 3.8 for the most common convention parameters. The State considers the SWMO in the South River Nutrient Region for total suspended solids, and in the Central River Nutrient Region for other parameters. The SWMO does not agree and considers the South Nutrient Region the appropriate region for the SWMO. Therefore, specific numerical goals in Table 3.8 reflect the South Nutrient Region only. With respect to Fish and Macroinvertebrate IBI goals, the SWMO acknowledges the state standard and accepts the state's position on impairments. The SWMO, however, does not have much experience with the current IBI metrics used by the MPCA. In addition, Multiple Stressor

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Analyses have not yet been completed for most of the IBI impaired reaches in the SWMO, nor have relationships between management actions taken and IBI responses been established such that they can be used for numerical predictive responses. Add to this that tiered standards are confusing, and thus, the SWMO has no basis on which to take a position on reasonable long-term numerical goals for IBIs. The SWMO has therefore established a long-term goal that is more narrative for IBIs in the cases where they indicate impairment which is to establish partnerships and improvement trends in IBI scores.

Table 3.8. Long Term Numerical Target Values for Stream Water Quality Parameters

Parameter	Target/Goal	Basis
Chlorides	230 mg/L Chronic 860 mg/L Maximum	State standard for Class 2b waters
Dissolved Oxygen	Minimum of 5 mg/L	State standard for Class 2b waters
pH	6.5 to 9.0 su	State standard for Class 2b waters
Total Phosphorus	Less than or equal to 150 ug/L	State standard for Class 2b waters—South River Nutrient Region
Total Suspended Solids	Less than 10% of observations between April 1 and September 30 exceeding 65 mg/L	State standard for Class 2b waters—South River Nutrient Region
<i>Escherichia (E.) Coli</i>	Not to exceed 126 org. per 100 milliliters as a geometric mean of not less than 5 samples representative of conditions within any calendar month or shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 org. per 100 milliliters. The standard applies between April 1 and October 31.	State Standard for Class 2b waters.

Short-Term Numerical Water Quality Goals. In addition to the long-term goals described above, the SWMO was asked by State Agencies with concurrence of the Technical Advisory Committee to provide interim numerical goals for water bodies over the duration of this Plan (i.e., through 2026). This is difficult, as the detailed studies necessary to reasonably set such interim goals have mostly not been completed, and the level of on-going support from the state and federal government is unknown. The Lower Minnesota River Basin Watershed Restoration Action Plan is not yet complete, and the only TMDLs completed are the Cedar and McMahon Lakes Excessive Nutrient TMDL,

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the Minnesota River Dissolved Oxygen TMDL, and the Twin Cities Metro Area Chloride TMDL. The Minnesota River Dissolved Oxygen TMDL and the Twin Cities Metro Chloride TMDL are not directly useable by the SWMO to set interim water body goals. The Minnesota River DO TMDL largely affects an area much greater than the SWMO and focused on wastewater discharge reductions. The chloride standard is occurrence based, not load based, and the TMDL has a best practice foundation. With that said the SWMO has incorporated a chloride reduction strategy in Section 4 that requires LGUs to describe their effort to meet the TMDL in their Local Water Plans.

The Cedar and McMahon Lakes TMDL was useful for setting management direction in the past, but is now out of date. McMahon Lake is already a success story with recent monitoring showing that as of 2016, it was meeting state standards for eutrophication, and the MPCA has agreed to de-list the lake in 2018. Thus, the interim and long-term goal for the SWMO is to preserve this condition. For Cedar Lake much of the TMDL Implementation Plan has been implemented with respect to watershed Load Allocation (LA) reductions and in-lake reduction with respect to curly-leaf pondweed control, and the SWMO will commit to a goal of achieving 100% of the total phosphorus LA reduction. Modest carp harvesting effort have also been completed as well as a study (Wein et al. 2017) showing that carp density in the lake in 2017 is much lower than that assumed in the original phosphorus load modeling completed for the TMDL. Thus, load modeling needs to be updated. Until such time the SWMO will commit to an interim goal of achieving 100% of the LA reduction, and to updating the modeling as part of Information & Studies Strategy described in Section 4.

The only stream study of sufficient detail that has been completed and has the necessary information is the Sand Creek Watershed TMDL Impaired Waters Resource Investigations (Volumes 1 and 2; SWMO, 2010) for TSS that was completed as an approved Clean Water Partnership project in 2010. Thus, Sand Creek is the only stream with an interim numerical goal set by the SWMO—other impaired streams have a narrative interim goal as described in the framework below.

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- For waters that meet water quality standards, both the interim and long-term goals will be to continue to meet the standard.
- For impaired waters where a TMDL or detailed study has been completed the SWMO will set a numerical goal for what it believes is a reasonable fraction of the unregulated watershed based Load Allocation reduction that can be achieved by 2026. In addition, the SWMO will commit to partnering to address internal Load Allocation (LA) reductions, but will not be responsible for regulated Waste Load Allocation (WLA) reductions. With this approach, the SWMO is taking the lead on reducing nonpoint sources of pollution. SWMO action on other sources (in-lake and point source) will be discretionary. With that said, the SWMO is willing to partner with permitted entities to work in partnership to address WLA reductions where it is efficient and more cost effective than addressing LA reductions. Unfortunately, at this time only Sand Creek with respect to TSS, and Cedar Lake for phosphorus have such studies. Interim numerical goals for Sand Creek and Cedar Lake are presented below (Table 3.9). See the example in Table 3.10 for how additional interim goals will be set as studies are completed.
- For an impaired water where a TMDL or detailed study has not been completed the SWMO sets a numerical goal of achieving a positive trend by 2025 for selected parameters (i.e., total suspended solids, total phosphorus, water clarity, chlorophyll-a, bacteria) for which it has significant control and authority. We will also monitor and adapt as necessary.

In TMDL studies, pollutant loads that will meet water quality standards are typically categorized as:

- **Waste Load Allocations (WLA)—allowable allocation discharged from pipes (stormwater or wastewater).**
- **Load Allocation (LA)—allowable allocation from diffuse sources (i.e., nonpoint source pollution—for example runoff from agriculture or from shoreland areas directly tributary to lakes in urban areas).**

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Table 3.9. Interim (Year 2025) Water Quality Goals

Situation	Interim Goal by 2025
Waters Currently Meeting State Standards	Continue to meet standards
Impaired Waters with detailed study or TMDL Complete	<p>Sand Creek at Jordan—achieve 40% of the load reduction necessary to achieve the TSS equivalency concentration for meeting the turbidity standard based on the 2010 study. Estimated mass of this reduction is 300 Tons/day under high flows.</p> <p>Cedar Lake—100% of the watershed LA reduction for total phosphorus or 81lbs/year TP</p>
Impaired Waters without detailed study of TMDL (see 2018 Impaired Waters List)	Create an improving trend for the parameters (total suspended solids, total phosphorus, water clarity, chlorophyll-a, bacteria) considered impaired.

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Table 3.10. Cleary Lake TMDL SWMO Interim Goal Example (Data from Preliminary Draft TMDL from the MPCA—numbers are for example purposes only)

Parameter		Existing P Load		TMDL P Load		Load Reduction		SWMO Role*	SWMO Interim Goal*
		lb/yr	lb/day	lb/yr	lb/day	lb/yr	Percent		
Total Load		2,097	5.75	457	1.25	1,640	78%		
WLA	Total WLA	220	0.604	59.4	0.163	161	73%		
	City of Prior Lake MS4 (MS400113)	119	0.326	29.3	0.0803	89.7	75%	Support	NA
	Credit River Township MS4 (MS400131)	53.5	0.147	13.2	0.0362	40.3	75%	Support	NA
	Spring Lake Township MS4 (MS400156)	35.7	0.098	8.78	0.0241	26.9	75%	Support	NA
	Scott County MS4 (MS400154)	5.08	0.0139	1.25	0.00342	3.83	75%	Support	NA
	Construction stormwater (MNR100001)	3.43	0.00940	3.43	0.00940	0	0%	Support	NA
	Industrial Stormwater (MNR050000)	3.43	0.00940	3.43	0.00940	0	0%	Support	NA
LA	Total LA	1,877	5.14	375	1.03	1,502	80%		
	Watershed runoff, unregulated	1,152	3.16	283	0.775	869	75%	Lead	50% reduction (434 lbs/yr) by 2025
	Internal load	666	1.82	33.3	0.0912	633	95%	Partner with Three Rivers Park District	NA
	Atmospheric deposition	59.0	0.162	59.0	0.162	0	0%	NA	NA
MOS		NA	NA	22.9	0.0627	NA	NA		

*Roles and reduction goals are for discussion purposes only.

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Goal 3: To Protect Groundwater Quality and Supplies

Changes to Rule 8410 now require Watershed Management Plans to consider groundwater. However, in the SWMO's previous Plan, the SWMO had voluntarily included a groundwater goal and associated policies and strategies. With this Plan update, the SWMO continues this goal and policies. However, as shown in the detailed strategy descriptions in Section 4, SWMO efforts directed at this goal increase. This is due to the identification of groundwater protection as a high priority in the SWMO. Increased effort consists of increased targeted promotion of cost share and incentive practices that protect groundwater in Drinking Water Supply Management Areas (DWSMAs), and highly susceptible areas shown on the Scott County Geologic Atlas. Policies with respect to groundwater protection include:

- Policy 3.1: Preserve and protect groundwater quality and quantity
- Policy 3.2: Improve Understanding of Groundwater Resources

Goal 4: Flood Management. To protect human life, property, and surface water systems from damage caused by flood events.

Flooding and the damages caused by flooding, are one of the most visible processes that can take place in a surface water management system. Images of high water levels inundating croplands, homes, and businesses are images that do not fade easily after a flood event recedes. Flooding can be caused by many different types of events, such as short intense rainfall events that often result in urban flooding or from long-term weather phenomena, such as a prolonged period of precipitation or large quantities of snowmelt that often affect larger stream systems and landlocked areas. Regardless of the type, the effect is the same: physical and social damages result.

In order to provide flood protection, there are several basic principles of flood management that apply. First, this goal seeks to prevent the placement of people, homes, and businesses in harm's way. Second, the goal is intended to prevent new and redevelopment from making known flooding problems worse because of their actions. Third, this goal recognizes that to provide flood protection, the surface water management systems must be operated and maintained to prevent their failure. Lastly, this goal recognizes that we should gain a better

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understanding of the flooding areas that we know about as well as the areas that are unknown at this time. By preventing the creation of new flooding problems and identifying potential issues, the goal seeks to minimize the resources expended in response to flooding, through a less costly effort in advance.

Flooding occurs at both local and regional scales. This Plan manages both scales, but differently. Local scale flooding is managed through the setting of standards that keeps homes and businesses out of harm's way, and manages stormwater flows. It is the SWMO's intent that management at this scale be led by local units of government (i.e., cities, townships and the county). All of the cities and the county have Local Water Plans approved by the SWMO that incorporate the SWMO's Standards. All of the cities in the SWMO operate Stormwater Utilities and are better positioned to implement the day-to-day operational and maintenance efforts needed at this scale. For large scale regional types of flood mitigation the SWMO will partner with affected communities for feasibility studies and capital improvements. Policies with respect to flood management include:

- Policy 4.1: Minimize flooding risk for and from, new and re-development, by regulating: 1) activities in the floodplain, 2) placement of structures in flood prone areas, and 3) the loss of floodplain capacity
- Policy 4.2: Manage new development and drainage alterations to prevent increases in flood flows and downstream impacts
- Policy 4.3: Promote and ensure maintenance of drainage and stormwater systems
- Policy 4.4: Minimize the risk of flooding by promoting a regional approach to stormwater management and maximizing upstream storage
- Policy 4.5: Address known regional flooding concerns and problems that have cross jurisdictional implications and /or origin
- Policy 4.6: Address local flooding concerns in Local Water Plans
- Policy 4.7: Improve understanding of flooding risks in the SWMO

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Goal 5: Collective Action. Increase Adoption of Actions and Practices that Protect and Improve Water Resources

In order for the other goals related to wetlands, surface water, groundwater, and flooding to be achieved landowners, businesses, institutions and local units of government need to choose to adopt or comply with regulatory standards, or act voluntarily. Landowners can be compelled by threats of civil penalties, and compliance to some extent will be achieved, but little else will be accomplished. On the flip side relying completely on voluntary compliance is not realistic, and there is not enough money to pay landowners for the conservation necessary to achieved desired outcomes. The SWMO together with the Scott SWCD has pioneered a new approach to balancing this dilemma and increasing collective action, which was recently published by Nelson, Davenport, and Kuphal (2017, <https://freshwater.org/inspiring-action/>). This approach submits that nonpoint source pollution control programs controls are more successful when they:

- 1) Apply systems thinking
- 2) Are locally relevant
- 3) Engage local community members
- 4) Build strong relationship and enduring partnerships
- 5) Stay focused learn and adapt

From experience, the SWMO believes that these key factors also apply to increasing collective action for surface water quality in general, wetlands, groundwater, and flooding. Thus, the SWMO intends to continue using the approach described in Nelson, Davenport, and Kuphal; and adopts the following policies:

- Policy 5.1: Improve understanding of both the social and biophysical systems at play locally in the SWMO
- Policy 5.2: Make programs locally relevant
- Policy 5.3: Engage locally
- Policy 5.4: Building strong relationship and enduring partnerships
- Policy 5.5: Learn by doing and adapt quickly

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Goal 6: Optimize Public Expenditure

One of the primary reasons for doing water resources planning is to manage the resource, head off problems, and operate programs in ways that are cost effective and control expenses over the long term. This means minimizing redundancy, focusing on priorities, operating efficiently and being accountable. The policies encourage interagency coordination, promote organizational efficiency and provide guidance with respect to program expenditures. Optimization in terms of focusing on priorities is provided throughout the Plan. Specific policies related to this goal include:

- Policy 6.1: Foster on-going communication and coordination with other agencies and jurisdictions
- Policy 6.2: Promote collaborative decision making
- Policy 6.3: Limit SWMO special taxing district levy increases to the rate of growth in the tax capacity plus inflation
- Policy 6.4: Maintain Consistency of the SWMO's Standards with other Standards and Regulations
- Policy 6.5: Minimize Redundancy
- Policy 6.6: Use County and SWCD staff unless:
 - Partnering or contracting is more economical,
 - The needed expertise does not exist with County or SWCD staff,
 - County or SWCD staff do not have the time,
 - The effort does not involve building relationships,
 - It is a one-time effort and not a routine effort,
 - The effort does not depend on existing relationships or contracting and does not conflict with statutory responsibilities, or
 - Additional resources that would not otherwise be brought to the effort are compromised.

If it is deemed appropriate to use a consultant the SWMO will first consider pre-qualified consultants from a pool of consultants. Review of qualifications and pre-qualification

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selection for the pool will be completed once every two years. Final selection for a contract will follow Scott County and State protocol.

- Policy 6.7: Regularly Assess Programs and Progress
- Policy 6.8: Pool and share resources
- Policy 6.9: Engage Volunteers

Goal 7: Build a Resilient Landscape

Resiliency is the ability to recover from an impact or disaster. It is important for the SWMO given the 2014 Presidential Disaster declaration, and increasing rainfall amounts and intensities. Resiliency can be built in a number of ways. Regulations can be used to make sure that homes, businesses and infrastructure are built in areas out of harm's way, or that prevent stormwater runoff from increasing and adding to problems. SWMO policies related to this means of building resiliency are already covered under Goal 4: Flood Management, specially:

- Policy 4.1: Minimize flooding risk for and from, new and re-development, by regulating: 1) activities in the floodplain, 2) placement of structures in flood prone areas, and 3) the loss of floodplain capacity
- Policy 4.2: Manage new development and drainage alterations to prevent increases in flood flows and downstream impacts

Resiliency can also be built by managing healthy soils and diverse plant communities, and protecting and enhancing natural system functions that help moderate impacts. Goal 1: Wetland Management and Goal 2: Surface Water Quality include some policies along these lines, specifically:

- Policy 1.1: Preserve Wetlands (no net loss) For Water Retention, Recharge, Soil Conservation, Wildlife Habitat, Aesthetics, and Natural Enhancement of Water Quality.
- Policy 1.3: Enhance and Restore Wetlands
- Policy 2.1: Promote a Sustainable Systems of Buffers and Green Infrastructure

Additional policies added with this goal include:

- Policy 7.1: Prioritizing the protection and improvement of soil health

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- Policy 7.2: Prioritizing the establishment of year round living vegetative cover
- Policy 7.3: Maximizing vegetative diversity

Goal 8: Public Drainage. Maximize the public value of the public drainage systems

The drainage authority across the county including the areas in the SWMO is Scott County, except for a few ditches in the southern part of the County (Joint Ditch 1, Joint Ditch 1 lateral 2, and Joint Ditch 4) where there is a Joint Ditch Board with Le Sueur County. The SWMO is not a separate unit of government from Scott County. Within the County different staff/departments assist with public ditch operations versus SWMO administration, but staff do frequently coordinate. Given that the SWMO is not a separate unit of government from the County, and that there are Joint Ditches with Le Sueur County and there are also public ditches in other watershed organization jurisdictions (i.e., Prior Lake-Spring Lake Watershed District, and the Vermillion River Joint Powers Organization) the SWMO does not see advantages to managing the drainage systems under 103B. That said, the County does see some potential advantages to shifting certain aspects of public drainage activities to the same staff/department that staffs the SWMO.

The SWMO has found that drainage efficiencies created by public drainage systems have:

- 1) adversely impacted surface water quality and flooding; and
- 2) going forward management of these systems have the ability to either negatively or positively impact achieving Goal 1: Wetland Management, Goal 2: Surface Water Quality, and Goal 3: Flood Management depending on whether drainage management focuses on a single benefit (i.e., drainage) or multiple benefits.

The SWMO is slowly shifting from agriculture to rural residential and residential. With this shift there is a decreasing demand for agricultural drainage focus, and an opportunity for multi-purpose management. This shift will be ditch specific with those ditches in the southern part of the SWMO retaining their agricultural drainage benefits longer than other public ditches that are located in areas converting to other land uses. Thus, with this Plan the SWMO adopts the following policy.

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- Policy 8.1: In cooperation with the ditch authority, develop a vision for management of the public ditch system that includes consideration of improvements that provide multiple benefits (e.g. drainage and water quality) and possible abandonment where public benefits have ceased.

Section 4

This section of the Plan includes the strategies for water resource management in the Scott Watershed Management Organization (SWMO) through the year 2026. Each management strategy is briefly described and may reference other documents enacted to achieve the goals. These goals and associated policies form the framework for water resources management decisions made by the SWMO. The development of these strategies considered the issues and management gaps identified in Section 2, and their priority.

The relationship between how each strategy relates to each goal of the SWMO is articulated in Table 4.1. Strategies are the specific programmatic approaches the SWMO will use to implement policies and work toward goals. Total, the SWMO has eight goals as articulated in Section 3. Five of these goals have resource based outcomes, and three have operational outcomes. The process for implementing is provided in more detail in Section 5.

MONITORING

This strategy consists of continuing a formal monitoring program for lakes, streams, and groundwater.

Lake Monitoring

Lake monitoring will be continued through the CAMP program with volunteers and the Metropolitan Council. Targeted lakes for continuation include: Cedar, McMahon, O'Dowd, and Thole. The SWMO will consider additional lakes if volunteers come forward.

Stream Monitoring

Stream monitoring will:

- Rely on the Metropolitan Council's sites on the Credit River and Sand Creek for identifying long-term trends.
- Implement a rotating schedule of synoptic monitoring (i.e., monitoring a handful of times annually at multiple points along streams on the same dates) to identify "hotspots"

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(i.e., area or region with a relatively pollutant concentration in comparison to its surroundings indicating a nearby potential source).

- Include detailed diagnostic monitoring of the Credit River and Sand Creek in 2023, and 2024, respectively.

Table 4.1. How Strategies Relate to SWMO Goals

Strategy	Goal 1: Wetland Management	Goal 2: Surface Water Quality	Goal 3: Groundwater Management	Goal 4: Flood Management	Goal 5: Collective Action	Goal 6: Public Investment	Goal 7: Resiliency	Goal 8: Public Drainage
Aquatic Invasive Species		✓				✓	✓	
Buffers/ Habitat/ Diversity	✓	✓	✓			✓		
Capital Improvement		✓	✓	✓		✓		
Coordination	✓	✓	✓	✓	✓	✓	✓	✓
Cost Share & Incentives	✓	✓	✓	✓	✓	✓	✓	
Information & Studies		✓	✓	✓		✓	✓	✓
Innovation	✓	✓	✓	✓		✓	✓	
Living Cover	✓	✓	✓	✓	✓	✓	✓	
Local Water Plans	✓	✓	✓	✓		✓		
Maintenance	✓	✓		✓		✓		
Monitoring		✓	✓			✓		
Regional Stormwater	✓	✓	✓	✓		✓	✓	✓
Pollutants		✓	✓		✓	✓	✓	
Standards	✓	✓	✓	✓	✓	✓		
Targeting	✓	✓	✓	✓	✓	✓	✓	
Technical Assistance	✓	✓	✓	✓	✓	✓	✓	
Water Conservation		✓	✓	✓	✓	✓	✓	

The synoptic monitoring will focus on chlorides and bacteria for the Credit River and Sand Creek (and its tributaries) since detailed diagnostic studies regarding TSS and TP have already been

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completed. For Roberts and Brewery Creek the synoptic studies will focus on TSS, TP, bacteria, and NO₃. Field measurements for DO, temperature, pH, conductivity, and turbidity will also be collected on all the creeks. The objective will be to complete a year of synoptic monitoring two times during the plan cycle for Roberts, and Brewery Creek. One monitoring year will be completed for Credit River and Sand Creek and its tributaries since they will also be the subject of additional more detailed diagnostic monitoring. If hotspots are identified for bacteria, more detailed monitoring coupled with DNA fingerprinting may be used to further diagnose sources.

Detailed diagnostic monitoring in 2023 and 2024 will be similar to that completed for the Sand Creek Clean Water Partnership study monitoring completed in 2007 and 2008, and the Credit River Study monitoring completed in 2008 and 2009. For these studies continuous stage was recorded and samples collected at 5 sites on Sand Creek (or its tributaries) and 3 sites on Credit River. Samples will be analyzed for a suite of conventional parameters (dissolved oxygen, turbidity, pH, temperature, TP, TDP, chlorophyll-a, BOD, nitrate and nitrite nitrogen, TSS, VSS, bacteria, and chlorides). The years 2023 and 2024 were selected in order to be able to assess the data collected in time to inform the next plan, which is targeted for completion at the end of 2026.

Groundwater Monitoring

The SWMO will continue to support the sale of well test kits by the County and reporting of the results. The SWMO will also continue to support nitrate-testing clinics by the Minnesota Department of Agriculture. In addition, the SWMO will twice implement a designed sampling of multiple rural wells over the plan cycle. This effort will be similar to that completed in 2011, and planned for completion in 2018. Samples (60 to 100) will be collected from wells using a stratified random distribution across rural areas of the SWMO. Samples will be analyzed for NO₃, arsenic, and atrazine (by amino assay).

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INFORMATION & STUDIES

This strategy consists of collecting additional water resource related inventory data, assessing data to convert it into information, and the completion of feasibility studies. Some of these efforts are known (Table 4.2), others will be identified only after preliminary studies are completed. Some affect the surface water quality goal, others the flooding goal or the public drainage system goal, and at least one (the Campbell Lake Regional Stormwater Assessment) affects both the surface water quality and the flooding goals.

Table 4.2. Anticipated Inventories and Assessments

Title	Goals Affected	Priority	Description
Thole Lake Outlet Stormwater Assessment	Flooding	High	Thole Lake is experiencing high water levels, and the outlet flow path is largely a collection of private infrastructure which is also stressed. This study would assess the problems identifying potential solutions and opportunities for regional stormwater management.
Campbell Lake (upper Picha Creek) Regional Stormwater Assessment	Flooding and Water Quality	High	The Campbell Lake area is the headwaters of Picha Creek, and is slated to be annexed by the City of Prior Lake. This study would assess potential issues with development, and identify potential opportunities for regional stormwater management.
Cedar Lake Water Quality Modeling Update	Water Quality	Low	Eutrophication modeling was completed for Cedar Lake as part of the TMDL completed in 2010. However, since then conditions have significantly changed and the modeling needs to be updated.
Ditch Multiple Purpose Assessments	Public Ditch	Medium	These assessments will focus on various county ditches to develop long-term multi-purpose management visions. The focus will be on those where the agriculture drainage benefits have significantly declined such as CD4, which covers portions of the Credit River.
Sand Creek Flood Protection Feasibility Analysis	Flooding	High	City of Jordan has a large number of homes and businesses in the floodplain of Sand Creek. This study will assess the feasibility of various mitigation options, particularly levees and a bypass.*
Thole Lake Subwatershed Assessment	Surface Water Quality	Medium	A draft TMDL has been completed for Thole Lake. This Subwatershed Assessment will identify potential watershed based practices, and septic system program opportunities to reduce phosphorus loading to the lake in accordance with the TMDL when it is complete.

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Table 4.2. Anticipated Inventories and Assessments

Title	Goals Affected	Priority	Description
McMahon Lake Outlet Feasibility Assessment	Flooding and Surface Water Quality	High	McMahon Lake is experiencing high water levels, which stay high since the lake does not have an outlet. This floods the public boat launch and is leading to shoreline erosion. This study will examine the feasibility of an outlet.
Social Attitudes Survey Regarding Water and Conservation	Collective Action	High**	The SWMO has completed 2 surveys of landowners, and has another underway regarding attitudes toward water resources and adoption of conservation. An additional one will be completed in 2024 to document any changes, and inform the next plan update.
Roberts Creek Subwatershed Assessment	Surface Water Quality	Medium	Roberts Creek will be listed as impaired due to bacteria, TSS, and invertebrate and fish bioassessments. A TMDL has not been completed, but has been started. This Subwatershed Assessment will identify potential watershed based practices, and septic system program opportunities. It will be scheduled to complement TMDL completion and synoptic monitoring.
City of Shakopee Regional Stormwater Feasibility Studies	Surface Water Quality	Medium	This effort consists of feasibility assessments for the incorporation of water quality components in regional stormwater management facilities being contemplated by the City of Shakopee (city projects 19-03 and 22-002). The City of Shakopee will lead and manage this assessment. The SWMO's role is advisory, and to pass through state Watershed Based Funding for the assessment.
Twin Lakes Stormwater Volume Study	Surface Water Quality and Groundwater Quantity	Medium	This effort consists of completing a feasibility study regarding runoff volume control (including the reuse of stormwater) in the Twin Lakes area of the City of Savage. This City of Savage will lead and manage this study. The SWMO's role is advisory, and to pass through state Watershed Based Funding for the study.
Updating the Sand Creek Water Quality Assessment and Implementation Plan	Surface Water Quality	Medium	A Diagnostic Study, and Implementation Plan were completed in 2010 focusing on reducing sediment and phosphorus pollution for Sand Creek and Cedar and McMahon Lakes. Much of the plan has been implemented, and new data has been collected by the MPCA (in support of developing WRAPS and TMDLs), Met Council, and the SWMO. The update will revise current strategies and flesh out additional strategies identified in pending WRAPs and TMDLs. It will then be used to guide targeted implementation.

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Table 4.2. Anticipated Inventories and Assessments

Title	Goals Affected	Priority	Description
City of Prior Lake DWSMA Abandoned Well Assessment	Groundwater Quality	Medium	This effort consists of reviewing the City of Prior Lake Drinking Water Supply Management Area to develop a methodology for identifying probable locations of abandoned/unsealed wells. Methodology developed could then be used with other DWSMA's in the SWMO. Results will also be used to target contacts for the well sealing cost share practice implementation through the TACS program.

*This study will be initiated in 2018, but may continue, or may discover the need for additional assessment beyond 2018.

** While noted as a high priority, the survey is scheduled for completion in 2024.

The MPCA is completing studies (TMDLs and a Watershed Restoration and Protection Strategies—WRAPS) for impaired waters in the Lower Minnesota River Basin. These are at a high level of analysis and planning, and more study and detail will need to be added in order to prioritize and target implementation. A couple of additional assessments that can be anticipated following completion of the final TMDLs and the WRAPS, are Subwatershed Assessments for Cleary and Thole Lakes. These two lakes are listed as impaired and have draft TMDLs. The Cleary Lake Subwatershed Assessment is scheduled for completion in 2018. The Thole Lake Subwatershed is included in the list of assessments to be completed during this plan cycle in Table 4.2. Sand Creek TSS trend analyses and load duration curves will also be updated through 2018 by Metropolitan Council Environmental Services in 2019.

As the WRAPS and TMDLs are completed there may be other Subwatershed Assessments that the SWMO desires to complete as well as other studies where the specifics are unknown at the time of publishing this Plan. These fall into three types as described below. As these become identified they will be compared to those listed in Table 4.2 above to determine their relative priority. Decisions about moving forward with any particular inventory or assessment will be made as part of the annual budgeting process. In general, the SWMO anticipates that it has the capacity to handle one or two inventory or assessment efforts per year.

- 1) Additional Subwatershed Assessments to add the detail necessary to target implementation of cost share and incentive practices, and capital projects and programs

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to achieve TMDL load reductions for streams. A significant amount of study has already been completed with respect to Sand Creek (and its tributaries) and the Credit River. Updating the past Sand Creek study and a subwatershed assessment for Roberts Creek are already included in Table 4.2. Thus, it is anticipated that it is more likely that these will focus on some of the smaller creeks like Brewery Creek.

- 2) Situations/problems that the SWMO is watching but has not yet decided whether to intervene. These are largely potential ravine erosion issues. There are a number of ravines that the SWMO knows are eroding, but they are not acute sources of sediment, not threatening infrastructure, or there are other issues/questions that need to be resolved before deciding whether to take on a project. For example, the SWMO knows that there are additional near channel sediment sources along Sand Creek, Porter Creek, and Picha Creek in addition to those that have already been stabilized, but staff is recommending that the SWMO wait to see how sediment pollution is responding before deciding to take on more capital improvement projects with respect to near channel sources.
- 3) New issues the SWMO is not currently tracking.

POLLUTANTS

This strategy details the SWMO's approach to managing pollutants of concern. See Section 3 for a discussion of priorities.

Management of pollutants includes a mix of general efforts, and specific approaches that vary by pollutant type, which include:

- The adoption of Standards that manage/minimize pollution in runoff from new and redevelopment (see the Standards Strategy).
- Inclusion of practices that promote soil health, provide living cover, moderate runoff and build resiliency as eligible for cost share and incentives (see the Cost Share and Incentive Strategy).

The remaining description of this strategy provide pollutant specific efforts and is organized by general pollutant type. Some of the studies necessary to fully flesh out pollutant and water

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body specific efforts are not yet complete (i.e., WRAPS, TMDL, and subsequent subwatershed assessments and project specific feasibility studies). Identifying pollutant and water body specific efforts under this strategy is integrally linked with the strategy for Information and Studies, and it is anticipated that as studies are completed this strategy will be amended to incorporate new information. The SWMO anticipates amending this Plan about every two years in order to adapt as necessary while implementing. In the interim, the SWMO will promote the numerous practices eligible for cost share and incentives using the best available information.

Bacteria

Currently there are two waterbodies in the SWMO listed on the federal 303(d) Impaired Waters List as being impaired for bacteria, which are County Ditch 10 and West Raven Stream. As part of the Watershed Restoration and Protection Strategy (WRAPS) study conducted by the MPCA, there are several additional waters that will be added to the federal impaired waters list for bacteria impairments in 2018 which include: Credit River, parts of Porter Creek, East Raven Stream, Big Possum and Brewery Creek. The SWMO will focus its water quality monitoring for streams by implementing a rotating schedule of synoptic monitoring to identify “hotspots.” The SWMO may utilize DNA sampling to determine specific sources of the bacteria and work with landowners on solutions. If the source is found to be human, the SWMO will develop a targeted mailing promoting Scott County’s septic loan program to owners of older septic systems or systems that are pumped frequently or not at all. If the source is found to be livestock, the SWMO will work with landowners on land application of manure including application amount, location and timing. The SWMO will also promote and target other practices that help control bacteria through the Cost Share and Incentive Strategy.

Chloride

This strategy promotes outreach efforts to meet the requirements of the Twin Cities Metro Area Chloride TMDL. Sand Creek and Raven Stream are currently listed as being impaired for chlorides and Credit River and East Raven stream are being added to the 2018 Impaired Waters list. The Twin Cities Metro Area Chloride TMDL linked the impairments in Sand Creek and Raven

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Stream to water softening and municipal wastewater discharges. The strategy consists of the following initiatives:

- 1) The SWMO will create awareness about the environmental impacts of chloride through education, outreach, training, and other activities to local residents, public works departments, applicators, elected officials, and businesses.
- 2) The SWMO will collect more detailed data by monitoring local surface waters for chloride concentrations to try to locate the “hotspots”, track progress, track trends, and understand where the sources may be coming from with respect to impaired surface waters (see Monitoring Strategy).
- 3) The SWMO will also require Local Governmental Units (LGUs) to detail how they plan to manage road de-icing efforts to meet the Chloride TMDL in their Local Water Plans (LWP).
- 4) The SWMO will consider cost share for singular de-icing practices in the short term if they meet the definition of innovative. For the long term the SWMO will consider adding specific de-icing practices to the list of eligible practices as they become commonly accepted. Consideration both short-term and long-term for cost share needs to be consistent with the Technical Assistance and Cost Share (TACS) Program “Guiding Principles” presented in Section 5.
- 5) The SWMO will also consider joint Capital Improvement Projects with LGUs designed to switch over larger portions of an overall public works operation to accepted chloride reducing de-icing practices if the LGU has included a plan in their LWP as described above, and as described under the Salt and Sanding Practices Local Water Plans Strategy. To be considered the LGU must consult with the SWMO, and submit their project for consideration. The SWMO will base its decision and level of support using the criteria and priorities described under the Capital Improvements Strategy.
- 6) The SWMO will also monitor groundwater for chloride (see Monitoring Strategy).
- 7) If groundwater monitoring finds that chloride is increasing and has the potential to approach the Secondary Drinking Water Standard, the SMWO will consider adding a

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water softener replacement incentive (to replace older water softeners with newer more efficient systems) as a practice eligible for cost share and incentives.

- 8) With respect to chloride impairments in Sand Creek and Raven Stream, the SWMO will also consider assisting public wastewater entities with chloride reduction (i.e., individual water softener rebate program) efforts if it is found to be the most cost effective means of achieving necessary reductions. Otherwise, the SWMO considers achieving reductions in wastewater a responsibility of the NPDES permit holder.
- 9) If water softening associated with rural individual well and septic system discharges are shown to be significant sources the SWMO will:
 - a) first work with the County to ensure septic systems are not failing and are not direct discharges; and
 - b) the SWMO will consider adding a water softener rebate/incentive to the list of practices eligible for cost share and incentives.

Nutrients

The SWMO will actively target nutrient management with respect to phosphorus and in lakes where TMDLs have been completed, and nitrates in groundwater where information suggests there is a risk. The SWMO will passively promote practices that control or reduce phosphorus or nitrates as a means of preventing increasing concentrations or new impairments in the rest of the SWMO. Active targeting of watershed practice installation will be done through the Cost Share and Incentive Strategy and the Capital Improvement Strategy following the process laid out in the Targeting Strategy. The resulting CIP table presented in Section 5 (Table 5.4) includes one project, each in the Cedar and McMahon Lakes subwatersheds, targeting phosphorus reduction. Passive promotion will be through general promotion of the Cost Share and Incentive Strategy. Active targeting for in-lake nutrient management will be implemented following the Targeting Strategy, the Aquatic Invasive Species Strategy, and the Capital Improvement Strategy. The CIP table in Section 5 includes alum treatment projects on both Cedar and McMahon Lake. These treatments were called for in approved TMDLs. McMahon Lake has subsequently improved without the treatment and now meets standards, but the listing as a CIP was retained in case conditions change.

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Practices specifically focusing on nutrient management in streams will not be explicitly or actively promoted. However, the SWMO expects its strategies and programs will have some effect on nutrients in streams because a number of practices included in the Cost Share and Incentive Strategy help manage nutrients, and a significant fraction of total phosphorus is associated with sediment. Sediment pollution management as described below has and will continue to be a strong focus of the SWMO.

With respect to nitrates in groundwater the SWMO will complete monitoring as described in the Monitoring Strategy. The SWMO will also target sensitive areas or areas where nitrates are a potential future issue. This targeting will promote practices that control the leakage of nitrates that are eligible for cost share and incentives. See Targeting Strategy for additional detail.

Sediment

As discussed in Section 1, the glacial history and geomorphology of much of the landscape in the SWMO is subject to accelerated erosion, and many of the creeks in the SWMO have high TSS concentrations and loads. This is also true for many of the small drainages in the bluff areas in the SWMO, particularly in the southwest portion of the SWMO boundary in Sand Creek, St. Lawrence and Blakeley Townships. Studies have also found that much of this sediment pollution originates from near channel (ravines, streambanks, and riverine bluffs). Resulting sediment has not only affected water quality and aquatic life, but has also impacted infrastructure, particularly roads and bridges. The SWMO completed the Sand Creek Watershed TMDL & Impaired Waters Resource Investigation (SWMO, 2010a and b) in 2010, and has also worked the Scott SWCD and contractors to assess and prioritize ravine and other near channel sediment sources. The collective outcome of these various assessments and planning efforts was the following strategy:

- 1) Improve riparian vegetation to increase streambank resistance to erosion.
- 2) Aggressively promote and target practices that slow down incision and control grade (i.e., grade control, water and sediment control basins, terraces, grassed waterways, lined waterways, etc).

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- 3) Aggressively promote and target practices in upland areas that moderate runoff to reduce erosive forces affecting near channel sediment sources (i.e., native grass plantings, wetland restoration, cover crops. Etc).
- 4) Completing priority capital improvement projects stabilizing near channel areas that are acute sources of sediment, or are threatening infrastructure and will not heal without intervention.

The SWMO has invested significant amounts of its own resources implementing this strategy over the past 8 to 10 years. The SWMO has also received significant state and federal financial assistance in the form of USEPA Section 319 grants and state Clean Water Fund grants—including a \$2.2 million dollar Targeted Watershed restoration grant from the Board of Water and Soil Resources. Collectively over one-half dozen capital projects have been completed and hundreds of cost share and incentive practices have been installed. The Targeted grant is for the Sand Creek Watershed and expires in early 2020. Similarly, the current Section 319 grant awarded to the SWMO will end later in 2020. Thus, the SWMO plans to continue implementing this strategy at least through 2020. In 2019 the SWMO, with assistance from the Metropolitan Council Environmental Services, will update TSS trend analyses and flow duration curves for Sand Creek to assess effectiveness of the strategy. Based on this analysis the SWMO may choose to take on additional capital projects or may just stay with promoting cost share and incentive practices on the uplands.

STANDARDS

This strategy consists of requiring compliance with locally adopted Federal, State and Local Statutes and Rules aimed at protecting human health and safety and surface and groundwater within the SWMO. In addition, it consists of continuing the stormwater management standards for new and redevelopment and standards that prevent further degradation.

Federal, State and Local laws addressed under the Standards are as follows:

- Minnesota Wetland Conservation Act (WCA) and associated rules (Minnesota Rules 8420);

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- Minnesota Floodplain and Shoreland Statute 103F and in associated Minnesota Rules 6120.500-6120.6200

The SWMO Standards are included as Appendix D with strike-out/underline showing changes made with this plan update. The Standards of the SWMO consist of:

- A policy statement
- A statement regarding the relationship with municipalities and the county with respect to Standards
- Eleven specific Standards are as follows:
 - Standard A—Definitions
 - Standard B—General Standards
 - Standard C—Bluff Standards
 - Standard D—Stormwater Management
 - Standard E—Erosion and Sediment Control;
 - Standard F—Floodplain Alteration;
 - Standard G—Wetlands;
 - Standard H—Bridge and Culvert Crossings;
 - Standard I—Drainage Alterations;
 - Standard J—Groundwater.
- Two Maps
 - Map 1: Bluff Overlay District of the SWMO
 - Map 2: Public Waters
- One Attachment: Simplified Hydrologic Yield Method

This and preceding Plans of the SWMO serve to document the need and reasonableness of the Standards. The most significant change made to the Standards with this Plan update is to follow the NPDES Construction General Permit requirements more closely as the basis for meeting water quality policies and goals as they related to new and re-development. This change was made to be consistent with SWMO Policy 6.4: Maintain Consistency of the SWMO's Standards with other Standards and Regulations, and Policy 6.5: Minimize Redundancy. The change 1) deletes numerous pages in Standard D—Stormwater Management where the SWMO had

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previously identified a number of potential volume control credits unique to the SWMO, and 2) slightly alters the language in Standard E—Erosion and Sediment Control.

The other significant change is the deletion of Standard J—Groundwater and Standard K—Alternative Standard. Standard J was deleted because Individual Sewer Treatment System authorities are statutorily mandated functions of the MPCA and the County. The County already has ordinances, and the language in the Standard is inconsistent with the county ordinance. Standard K was an attempt by the SMWO to allow for simple approval requirements for subdivisions where the SWMO was reasonably comfortable that they were “obviously” environmentally sensitive. However, the SWMO does not know of any applications submitted citing this Standard and now believes that it is not even an option given the evolution of NPDES General Permit requirements since the Standard was first adopted. No changes are proposed for Standard A—Definitions, Standard B—General Standards, Standard G—Wetlands, and Standard H—Bridge and Culvert Crossings.

Other key components of the Standards, and proposed changes are summarized below.

Peak Runoff Rate Control

Details of this requirement are located in Standard D—Stormwater Management. This Standard requires rates be held to existing rates for the incorporated areas of the SWMO and to pre-settlement rates in the unincorporated areas of the County. Criteria for addressing the rates as areas are annexed is also included as part of the standards. This Standard is unchanged from the existing Standards.

This Standard has different requirements if the proposed development is in an unincorporated area versus an incorporated area. The basic rationale and justification has to do with whether or not a managed stormwater infrastructure system is in place. In the incorporated areas, municipalities can use their public works departments and stormwater utility systems to pay for and operate stormwater infrastructure to manage stormwater and mitigate impacts. In unincorporated areas of the County, there is no stormwater utility and public works system for operating a stormwater system. This means that incorporated areas can plan for and develop in ways that consider downstream impacts and trunk stormwater management needs. In the

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unincorporated areas, the drainage system has evolved primarily to support agriculture, and largely consists of private drainage ways that are not actively managed, and were not designed for specific flow capacities. Given this condition, and the fact that there have been a number of development projects in the incorporated areas of the County that caused downstream damage and the County and the Township do not operate stormwater utilities, the previous Plan, and this Plan, call for a greater amount of storage with development in the unincorporated areas.

Floodplain and Shoreland Regulation

These are continued standards from the previous plans. The only change is that the SWMO will no longer require LGUs to adopt the Shoreland Model Ordinance. Development of the model ordinance is mandated in state statute, and the MDNR has promulgated the model in Rules. MDNR has the authority to implement the ordinance where a local unit of government does not have a Shoreland Ordinance approved by the MDNR. Thus, there already exists sufficient authority to assure a Shoreland Ordinance is in effect. In the interest of being consistent with the SWMO's Policy 6.5: Minimize Redundancy, by removing itself, the SWMO leaves the decision up to the LGU whether to adopt and enforce locally or to have the MDNR administer up to the LGU.

Keeping homes and businesses from being built in areas at risk of flooding is an important part of the SWMO's approach to achieving Goal 4: Flooding and Goal 7: Build a Resilient Landscape. Part of this is assuring that low floors of structure are built at elevations above known floodplain elevations. All of the communities/LGUs in the SWMO participate in the National Flood Insurance Program (NFIP), and have requirements as part of administering the program to set low/finished floors at protective elevations. These measures apply in flood prone areas mapped on the Flood Insurance Rate Maps (FIRMs). However, flooding is also known to be a risk in other areas not mapped on the FIRMs. The SWMO expects LGUs to adopt similar protection measures for these other areas particularly: other drainage ways with significant flows, areas adjacent to stormwater ponds and wetlands, and areas around landlocked basins. The expectation at a minimum is to be consistent with MDNR and NFIP requirements, and to be particularly careful around landlocked basins. SWMO's wording for such requirements is articulated in Standard D.2 Criteria (l), Standard D.2. Criteria (d)(1), and Standard F.2(b).

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Standard F—Floodplain Alteration

De minimis amounts of fill were added to Criteria 2.(a) for when floodplain alternations or filling is subject to the criteria, and it was clarified that the de minimis amounts would only apply in the flood fringe and where allowable rise has not already been consumed in NFIP areas. Otherwise, the Standard remains unchanged. De minimis amounts added were 40 cubic yards (approximately four dump truck loads) for Minnesota River flood fringe areas, and 20 cubic yards for other flood prone areas in the SWMO.

Standard I—Drainage Alteration

A de minimis drainage area of 50 acres was added under which the Regulation would not apply. Otherwise, the Standard remains unchanged.

Tile Drainage

The SWMO together with the Scott SWCD and the Watershed Planning Commission spent a significant amount of time exploring the need for, and the possibility of developing a standard for tiling. However, for a host of reasons, including that runoff yield does not seem to be increasing as shown in Section 1, the choice was made not to move forward with such a standard at this time. However, conservation drainage is identified in the Innovation strategy as something the SWMO would like to demonstrate.

INNOVATION

The purpose of this strategy is to promote demonstrations of emerging/innovative technologies and BMPs to reduce impacts to surface waters. In 2008, the SWMO considered emerging technologies to include raingardens, green roofs, pervious pavement, and shoreland restoration. Since that time examples of all of these have been completed and bioretention, raingardens and shoreland restoration have been added to the 2018 Conservation Practice Financial Assistance Program Policy Manual (PPM) (Appendix E) and thus are no longer considered innovative. Other innovative projects approved and funded in the past include: intensive/systematic street sweeping, iron filters, a sediment trap, and stormwater reuse. With this Plan update the SWMO

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is interested in demonstrations with conservation drainage, cover crops, perennial crops, projects that reduce the need of tile drainage, and projects that test or demonstrate more cost effective ways of achieving desired outcomes. Proposed projects are screened by the SWMO and applications are processed through the Scott SWCD. It is anticipated that this effort will decrease over time as suitable demonstrations are completed. Eligible practices, and cost share and incentive rates will be reviewed annually.

The SWMO's definition of innovative includes:

"New products and emerging technologies that provide customer and business value but significantly decrease aquatic resource impacts, decreases costs, improve efficiency, and demonstrate benefits in measurable ways. Projects that mimic natural processes and enable biological functions that are important to the ecological health of its setting, have the potential to be more cost effective and sustainable than existing methods, and fulfill ecological, social and cultural functions. In addition, maintains or enhances the quality of life for its community."

These include products or projects that demonstrate one or more of the following:

- Conserve water
- Address runoff volume control or disconnected stormwater management in new or creative ways, decrease or minimize the amount of impervious surface
- Improve buffering
- Relate people with the environment

Demonstration is a key part of an innovative practice and proposals should include a description of the demonstration value including; a description of the potential for greater use of the practice should the demonstration be successful, as well as documentation of how it will be tracked, made visible, and accessible.

TECHNICAL ASSISTANCE

This strategy consists of providing the staffing to provide technical assistance to landowners, and municipalities interested in conservation. This includes providing assistance, design,

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operation and coordination of the cost share program and targeted projects as well as day-to-day assistance to landowners interested in other state and federal programs or in conservation on their own. The majority of the staff is provided through the Scott SWCD, with some staff provided by the County, or upstream SWCDs or counties depending on the type of project and its location.

COST SHARE & INCENTIVES

This strategy consists of continuing the SWMO Cost Share and Incentive program. Incentives are available to landowners to implement Level 1 practices (Table 3.4, Section 3) where the landowners are giving up certain land uses or are risking losing income to benefit the public with respect to a high priority for the SWMO. Cost share is available to implement Level 2 practices (Table 3.4, Section 3), where the landowners gain some benefit, and the public also benefits with respect to a high priority for the SWMO. Eligible practices are those that have been determined to effectively address a priority concern of the SWMO with respect to pollutants or runoff reduction, relative to cost.

Table 4.3 provides a list of the cost share and incentive practices included in the 2018 PPM, see Appendix E. Practices not included are either not eligible or can be considered if deemed appropriate in accordance with the protocol listed under the Innovation Strategy. The PPM will be reviewed and updated annually, based on the prior year's experiences. Additional practices may be considered during the annual reviews based on changing technologies and/or resource needs. The resulting revised manual will be brought to the County Board (acting on behalf of the SWMO) for consideration of adoption at the beginning of each year.

Table 4.3. Eligible Cost Share and Incentive Conservation Practices as of 2018 Summary

Practice	Cost Share	Incentive	Lifespan
Bioretention Basins (Redevelopment/Community)	✓		10 years
Residential Rain Gardens (if identified in Local Water Plan)	✓		
Residential Rain Gardens		✓	
Contour Buffer Strips—non-harvestable	✓	✓	10 years
Contour Buffer Strips—harvestable		✓	
Contour Farming		✓	10 years
Cover crops—multi-year		✓	3 years

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Table 4.3. Eligible Cost Share and Incentive Conservation Practices as of 2018 Summary

Practice	Cost Share	Incentive	Lifespan
Cover crops—Annual		✓	1 year
Critical Area Planting		✓	10 years
Diversion	✓		10 years
Filter Strip—New non-harvestable		✓	10-15 years
Filter Strip—New Harvestable	✓*	✓	10-15 years
Filter Strip—Re-enroll of expired harvestable		✓	10-15 years
Filter Strip—Re-enroll of expired non-harvestable to harvestable		✓	10-15 years
Sensitive Field Border (Harvestable)		✓	10 years
Grade Stabilization	✓		10 years
Grassed Waterway	✓		10 years
Innovative Practices	✓		10 years
Conservation Drainage	✓		10 years
Conservation Cover (native grass)	✓	✓	10 years
Natural Shoreline Restoration	✓		10 years
Shoreline Stabilization	✓		10 years
Streambank Stabilization	✓		
Nutrient Management		✓	1 year
Variable Rate Application		✓	1 year
Prescribed Burning	✓		5 years
Forested Stream Buffer Improvement	✓		15 years
Herbaceous or Forested Buffer Establishment (Native Vegetation)	✓	✓	10-15 years
Herbaceous or Forested Buffer Establishment		✓	10-15 years
Terrace	✓		10 years
Underground Outlet	✓		10 years
Vegetated Treatment Area	✓		10 years
Waste Storage Facility	✓		10 years
Wastewater Treatment	✓		10 years
Water and Sediment Control Basin	✓		10 years
Well Decommissioning	✓		10 years
Wetland Restoration	✓	✓	15 years
Whole Farm Planning		✓	10 years

* For native grasses only

This strategy in combination with the Technical Assistance Strategy, make up one of the primary means by which the SWMO enables and implements practices, and the combined effort of the two strategies is known as the Technical Assistance and Cost Share Program, or TACS program. Greater detail regarding the TACS program is provided in Section 5 including Guiding Principles that are used to assure the program focuses on priorities of the SWMO, is cost effective, and

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sustainable long-term. There are also numerous program provisions regarding eligibility, payments, and detailed specifications included in the PPM (Appendix E). In general, practices are designed and constructed following the contents of appropriate and most current technical standards, including but not limited to:

- NRCS Field Office Technical Guide
- MPCA Stormwater Manual
- MPCA Protecting Water Quality in Urban Areas
- NPDES General Stormwater Permit for Construction Activity
- Minnesota Urban Small Sites BMP Manual
- MDA Agricultural BMP Handbook for Minnesota
- Other applicable local, state and federal regulations and standards

The majority of the staff support for this strategy will be provided through the Scott SWCD, with some staff provided by the County, or upstream SWCDs or counties depending on the type of project and its location.

COORDINATION

Watershed Management is a complex endeavor. Authorities and responsibilities are fragmented, and a significant amount of coordination is necessary to be successful. This strategy details the SWMO's approach to coordinating. It is predicated on some of the policies presented in Section 3, particularly:

- Policy 2.6: Coordinate with other agencies and water quality program under Goal 2: Surface Water Quality
- Policy 4.4: Minimize the risk of flooding by promoting a regional approach to stormwater management and maximizing upstream storage under Goal 4: Flooding
- Policy 5.3: Engage locally, and Policy 5.4: Building Strong relationships and enduring partnerships under Goal 5: Collective Action
- Policy 6.1: Foster on-going communications and coordination with other agencies and jurisdictions, Policy 6.2: Promote collaborative decision making, Policy 6.5: Minimize

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redundancy, and Policy 6.8: Pool and share resources under Goal 6: Optimize public expenditures

- Policy 8.1: Facilitate a vision for management of selected public ditches as agricultural drainage benefits decline

Under this strategy the SWMO will coordinate with others as necessary to achieve its goals in accordance with these policies. In addition to being transparent, frequently communicating with others, and being inclusive—this strategic effort will include:

- Periodic use of a Technical Advisory Committee comprised of local and agency professionals.
- Inclusion of Rice and Le Sueur Counties and SWCDs in the Technical Advisory Committee.
- Periodic meetings with LGUs to track Local Water Plan implementation, and coordinate regrading cross jurisdictional issues. They include both informal as needed meetings, and more formal meetings. Our experience is that one formal meeting to track Local Water Plan implementation every two years is sufficient.
- Maintaining and enabling the Watershed Planning Commission.
- Routinely sharing data and information.
- Being available to assist with water mandates/programs where others are the lead when requested (i.e., Wellhead Protection Plans, MS4 Permit implementation, and Wetland Conservation Act operations, permitting, and Public Values Incentives/Natural Area Corridors).

WATER CONSERVATION STRATEGY

As discussed in Section 3, the SWMO has prioritized groundwater protection and adopted Goal 3: To Protect Groundwater Quality and Supplies. This strategy articulates one part of the SWMO's approach to groundwater supply protection. It consists of the following three parts:

- 1) Promoting water conservation through education and outreach efforts
- 2) Supporting wastewater or stormwater reuse projects

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- 3) Supporting Groundwater Conservation Planning outreach efforts to larger commercial or institutional campuses

For the first effort, the SWMO will support local efforts to develop and deliver education materials and programming that inform, inspire, and enable residents to use water more efficiently both indoors and outdoors. Support may include financial and/or in-kind. Priority will be given to efforts that foster cooperation among LGU's and reduce duplicative messaging and programming in the county. For the second and third efforts, the SWMO envisions providing a supporting role (i.e., financial, technical or policy) since the SWMO does not operate stormwater facilities, or provide water or wastewater services. That said, the SWMO is particularly interested in partnering with others to promote the Campus Groundwater Conservation Planning (CGCP) protocol. These protocol have been developed by the Anoka Conservation District and the Metropolitan Conservation Districts. The Scott SWCD was involved in developing the draft manual. The CGMP protocol provide a standardized methodology for identifying and ranking potential water conservation best management practices on large campuses—both indoor and outdoor. The protocol are being refined in 2018, with full rollout planned for 2019. The Scott SWCD will be looking to complete one or two plans in Scott County.

CAPITAL IMPROVEMENTS

This section describes the SWMO's strategy for determining and completing Capital Improvement Projects. A table (Table 5.4) describing the CIPs selected is provided in Section 5 as part of the Land and Water Treatment Program. The SWMO recognizes two tiers of Capital Improvement Projects (CIPs) based on the how well the proposed projects match up with SWMO priorities, and whether the benefit/cause is regional or local. The two tiers are:

- **Tier 1 Projects** are those the SWMO considers high priority as determined in accordance with the CIP policy and is willing to lead, finance or provide incentives. These are considered a "Level 1" effort per Table 3.4 in Section 3.

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- **Tier 2 Projects** are those where the SWMO sees value in completing the project and it is a high enough priority for the SWMO to support cost-share, technical assistance or grant writing assistance, but is not committed to leading. These are considered a “Level 4” effort per Table 3.4 in Section 3.

The adopted CIP table will be revised and amended every two years. Completion and participation in CIPs by the SWMO is a discretionary decision by the SWMO/County Board with advice from the Watershed Planning Commission and the Technical Advisory Committee. As a minor amendment, changes will also have a review/approval process as described in Section 7.

To be a CIP, the project must include a long-term public improvement. The SWMO will base its decision on whether to include a particular proposed project as a Tier 1 or Tier 2 CIP based on the evaluation of:

- Cross jurisdictional benefit, impact, or origin
- Available SWMO Funds
- Merit
- Feasibility
- Cost effectiveness
- Risk
- Identification as a priority in this plan or subsequent study
- Other proposed projects

High priorities for consideration include:

- Achieving required pollutant load reductions identified in TMDLs and impaired waters listings.
- Establishing buffers, acquiring high priority areas in Natural Area Corridors (Map 3).
- Acquiring area for, or constructing regional stormwater ponds ahead of development. Potential regional ponding sites have been identified by the SWMO as part of the Sand Creek and Credit River Regional Stormwater Ponding Studies. This does not preclude other possible opportunities identified that have merit.
- Flood storage projects that reduce peak flows, and runoff volume.

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- Restoring geomorphic processes such as reconnecting streams to their floodplains, restoring wetlands, or improving riparian vegetation.
- Projects that protect critical infrastructure.
- Projects addressing imminent public health and safety concerns.

Wetland mitigation opportunities are generally harder to find in more developed areas. This frequently means that developing communities and transportation authorities are looking for mitigation sites outside their jurisdiction or outside the project area. The SWMO will serve to facilitate the search for, and/or assist with, the acquisition of mitigation and wetland banking sites. The SWMO has resources such as a drained wetland inventory and regional ponding studies that the SWMO will use and make available to LGUs and transportation authorities to help in the search for suitable mitigation sites. The SWMO will also be available to help LGUs with land owner contract, negotiation and acquisition efforts for banking and mitigation sites that cross municipal boundaries.

TARGETING

The SWMO and the Scott SWCD have a significant amount of experience targeting conservation practices for implementation, and we recognize the value of targeting as a means of directing conservation where studies find implementation will have the greatest return. However, the SWMO and its partners have found that targeting is not a solution for all issues. Our experience is that unless it is carefully approached and packaged with complementary efforts to build relationships, understand the community, and build capacity, the answer often received from landowners when they are called will essentially be “no thank you.” We have found that Collective Action, adopted by the SWMO as Goal 5, and momentum are more important. Collective Action and momentum also play into the issue of sustainability. Like the State, the SWMO will never have the time or financial resources to support every structural and management practice necessary to achieve desired water quality in a particular watershed. Landowners and managers need to do most of the heavy lifting. They must feel empowered and motivated to not only implement conservation on their own voluntarily, but sustain it without constant financial support from the government. As stated above, an overarching

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strategy of the SWMO is to encourage and support needed change, not sustain it indefinitely, by focusing on efforts that create positive experiences, self-efficacy, and increased individual and collective capacity to act.

The following provides a list of what we have collectively learned from targeting. It is presented here not to undervalue or discredit the current statewide emphasis on targeting, but to provide context for the SWMO's strategy. What the SWMO and the Scott SWCD have learned about targeting is that:

- It is extremely valuable for targeting capital projects where the high cost of the project makes investment in studies and feasibility analyses worthwhile.
- It is less valuable for low cost practices that require broad adoption (i.e., cover crops where the Minnesota River Sediment Reduction Strategy identifies the need to have 75% of row crop acreage in cover crops).
- It works best in small, slightly to moderately impacted, watersheds where only a handful of practices need to be implemented to achieve desired outcomes.
- It does not have to be a specific location or landowner—targeting an area known to be a high pollutant source area is frequently more effective because landowners do not feel singled out, and social norms can be influenced when neighbors see that others are also implementing.
- Knowing the community and what is socially acceptable is just as important as identifying targeted technical solutions.
- There is little point to calling landowners and asking them to adopt practices that are known to be unacceptable—just creates frustration.
- There is a better reception to calls and ideas when there is an existing relationship between the staff person calling and the landowner.
- Landowners may not be immediately receptive.

Additionally, the SWMO and the SWCD are not just working with a landowner to implement a singular practice at one specific location—we are working to implement multiple practices or treatment trains/systems. Thus, our focus is on building the long-term capacity of landowners

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to embrace and implement conservation. This means intentionally coordinating targeting with other strategies and efforts. We view it as a multi-leveled strategy involving the elements below.

- 1) Getting to know the community, and when possible individual landowners. For individual relationship building, we focus on those who own or operate larger amounts of land.
- 2) Having companion efforts that address the most common barriers to implementation:
 - a) Belief that they have the ability to implement (self-efficacy) which is addressed with the Technical Assistance Strategy, and by holding up as leaders others who have implemented;
 - b) Belief that action will make a difference which is addressed by publishing and sharing success stories;
 - c) Access to the appropriate equipment which is addressed by having seed drills and a tractor available for rent; and
 - d) Financial capacity which is addressed in the Cost Share and Incentives Strategy.
- 3) Completing and using studies (both technical and social—see strategy on Information and Studies) to identify priority practices, target areas for specific practices, and when possible specific sites. We have reached out to landowners where targeted practices have been identified in the studies that are currently complete. These studies largely focused on sediment and nutrient sources. We anticipate repeating contacts for targeted practices identified in the Cedar Lake Subwatershed Assessment since we have found that sometimes repeated contacts will result in success. However, over the term of this Plan we anticipate additional studies and monitoring regarding chloride and bacteria hotspots, and nutrients to Clearly and Thole Lakes—see Information and Studies Strategy. These will form the basis for additional targeting.
- 4) Crafting the PPM that guides the TACS program in conjunction with the Scott SWCD to incorporate priority practices identified in studies, including financial assistance structured to create greater incentives for priority practices and landscape locations.

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- 5) Creating incentives and building capacity with the landowner for the long-term with tiered financial assistance packages that reward treatment trains or conservation systems (more than singular practices), and provides conservation planning.
- 6) Promotion of well decommissions in Drinking Water Supply Management Areas (DWSMAs) and high susceptibility areas shown on the Scott County Geologic Atlas.
- 7) Promotion of practices that control the leaching of nitrates (such as perennial cover, cover crops, nutrient management, wood bioreactors, waste management systems and well decommissioning) for both surface and groundwater in sensitive areas or areas where nitrates are a potential future issue. The targeted promotion may take place in response to a request from a local water utility, or may be initiated based on SWMO concerns. At the time of publication of this Plan the only area the SWMO has identified for active targeting of practices to control nitrates in groundwater is the Drinking Water Supply Management Area (DWSMA) for the City of Belle Plaine. Nitrates have not been documented as high in the water supply, but they have been documented as high in nearby surface waters. In addition to SWMO efforts, the MDA has published the Nitrogen Fertilizer Management Plan (NFMP), which is available at <http://www.mda.state.mn.us/sites/default/files/2018-05/nfmp2015.pdf>

Overall, the SWMO and its partners will continue to target, but will do so in a way that builds capacity and momentum for the long term, not just singular practices.

BUFFERS/HABITAT/DIVERSITY

Buffers

The SWMO vision in Section 3 contemplates the creation of a buffered environment. This was also part of the vision in the previous Plan. Under this Plan update, the strategy consists of continuing the first three efforts listed below, and adding a fourth effort.

- 1) This strategy consists continuing to require buffers recorded as conservation easements on all public watercourses and wetlands when land is subdivided. Standards for buffers only around wetlands were established with the first SWMO Plan & Rules. With this Plan they continue to be required under Standard G—Wetlands (Appendix D).

SECTION 4 – STRATEGIES

- 2) Continuing to include financial assistance in the form of cost share and incentives for voluntary practices that improve buffering such as filter strips, natural shoreline protection, and herbaceous or forested buffer establishment.
- 3) Providing additional incentives or requiring the use of native plants with cost share and incentive practices.
- 4) Acknowledging and using the Other Waters Map/ Inventory (Map 7) created by the Scott SWCD per Minnesota Statutes 103F.48, Subd. 4 to target voluntary implementation of conservation practices, particularly those that improve buffering. Other Waters Map 7 shows additional tributaries not under the MDNR public waters jurisdiction identified by the Scott SWCD in 2017 using criteria developed jointly with watershed organizations in the county (Appendix F).

In addition, trees offer multiple benefits, including providing wildlife corridors and habitat, shading of streams, and managing stormwater runoff. When planted properly, trees can capture rainwater and runoff. The rainwater benefits the trees and there is reduced runoff going into lakes, rivers and streams. The SWMO will continue to promote the Scott SWCD tree program to Scott County landowners and will add an option for woody vegetation to the 2018 PPM under the conservation cover practice.

Habitat

This strategy consists of:

- 1) Continuing to work in collaboration with Scott County Planning & Zoning, Parks, Public Works and willing landowners and developers to continue implementing the purpose of the Natural Area Corridors legacy. The purpose of Natural Area Corridors is:
 - Direct where natural resources can be enhanced or restored (e.g., what types of vegetation should be planted, where stormwater ponds should be located, etc);
 - Protect and buffer water resources;
 - Allow for movement of wildlife for their feeding, breeding, and nesting needs;
 - Provide connections between larger preserved areas;
 - Guide where trails may be located, if compatible and appropriate;

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- Safeguard landscape views to help maintain the rural “feel” of the community;
- Buffer natural resources from the impact of development;
- Recommend priorities for protecting natural areas and/or parks; and
- Assist with transportation planning.

Implementation tools that will be used to implement this strategy are the SWMO TACS program for landowners to help improve surface and groundwater quality and wildlife habitat. The Natural Area Corridors will be used as one means of prioritizing TACS outreach efforts.

Implementation tools for developers include developer dedicated conservation easements, guided development to minimize impact to the resource, and provide incentives in exchange for public benefits.

- 2) Incorporating habitat features in capital improvement projects when practical (i.e., using natural channel restoration techniques and bioengineering as the preferred approach for addressing streambank, ravine and bluff erosion).
- 3) Providing additional incentives or requiring the use of native plants with cost share and incentive practices.
- 4) Promoting practices that provide multiple benefits (i.e., native grass planting that improve habitat, moderate runoff, and improve soil health).

Diversity

Plant diversity is incredibly important in natural systems for a variety of reasons. Every plant species starts and ends their growth cycle at different times. Some start early, bloom, and are done before summer even starts. Others don’t bloom until late in the fall. There are many benefits to having vegetation diversity on the landscape such as, providing wildlife habitat and food sources, removal of nutrients and pollutants protecting water resources, carbon sequestration, soil health, healthy nutrient cycling and food chain support, providing connectivity between essential habitat, soil stability, competition for invasive species, and landscape aesthetics to name a few. Less diverse plant communities are not as efficient at taking up space and fully utilizing resources. The SWMO will continue to promote the Scott SWCD tree program to Scott County landowners and will require a minimum of ten (10) native species for projects unless the funding source requirements require more than ten. In the case

SECTION 4 – STRATEGIES

of projects being funded from federal or state sources, requirements for native species will follow BWSR's minimum recommended native species diversity numbers table as provided on page 6, in BWSR's publication *Native Vegetation Establishment and Enhancement Guidelines* June 2017 as amended.

LIVING COVER

This strategy consists of promoting "Living cover" which includes perennial crops, native grasses and prairie plants, cover crops and forests—all of which hold water on the landscape, filter contaminants, reduce runoff to lakes and streams, and allow clean water to recharge aquifers, protecting drinking water sources.

Urban and agricultural practices on landscape-scale acreages contribute excess nutrients and sediment to Minnesota's waters. One approach to this issue is to promote living cover, which is increasing the amount of land covered with perennial crops, permanent vegetation, cover crop plantings, and over wintering crops such as winter wheat and rye. Through the Targeted Sand Creek grant from BWSR, the SWMO purchased a cover crop planter for landowners to rent to plant cover crops in early summer so there will always be something growing and covering the soil in their fields. The challenge is how to provide incentives for farmers to plant these crops, especially in the most vulnerable locations. Without a market for perennial crops, there are few options short of permanent vegetation.

Establishing living cover in high risk areas can prevent and reduce groundwater contamination. Another approach in development at the state level is The Working Lands Watershed Restoration Program—a new report by the BWSR to the state legislature that will identify incentives for landowners to grow perennial and cover crops to improve water quality, and assess potential uses of these crops for grazing, livestock feed, heat, power, or biofuels. The SWMO and SWCD PPM includes practices that provide living cover such as native grass plantings, contour buffer strips, filter strips, grassed waterways, natural area shoreline, riparian buffers and cover crops that were added to the PPM in 2016 as an incentive practice.

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Agricultural best management practices in wellhead protection areas are essential, but are not enough to prevent contamination of groundwater. Establishing living cover in high risk areas can prevent and reduce groundwater contamination.

Soil Health

Crops grown in healthy, productive soil provide a wide range of sustainability benefits. By following these basic soil health principles, producers can improve their soil health and sustainability: 1) Keep the soil covered as much as possible; 2) Disturb the soil as little as possible; 3) Keep plants growing throughout the year to feed the soil; 4) Grow a variety of plants to diversify the soil. Practicing soil health management systems such as conservation crop rotation, cover crops, high residue management which includes but is not limited to no-till, and nutrient management for example, a) Saves farmers money—since reducing or eliminating tillage means fewer passes over fields, and healthy soils use inputs like water and nutrients more efficiently, production costs are lower; b) Boosts production—plants thrive because more organic matter and soil organisms improve soil structure, aeration, water retention, drainage, and nutrient availability; c) Protects against drought—because healthy soil has greater water infiltration and holding capacity, more water is available to plants when they need it, such as periods of drought; d) Safeguards resources—runoff that causes flooding or carries nutrients and pesticides into lakes, rivers, and streams is reduced. There is less leaching into groundwater, and fewer trips across fields with farm machinery mean less fuel used and fewer emissions to harm air quality.

In an effort to improve water quality and reduce sediment and nutrients from reaching our surface waters, the SWMO and SWCD have been working with landowners for many years to get landowners to do conservation practices to reduce runoff.

Soil health, also referred to as soil quality, is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans. This definition speaks to the importance of managing soils so they are sustainable for future generations. (USDA—<https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) As mentioned previously, the SWMO purchased a cover crop planter for landowners to rent to plant cover crops so there will

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always be something growing and covering the soil in their fields. In addition, the SWMO and SWCD continuing to include cover crops in the PPM as an incentive practice for farmers. The SWMO will also partner with SWCDs to support cover crops and perennial vegetation demonstrations that include monitoring of soil physical conditions in response to the demonstrations over time. The intent is that these demonstration plots can also serve as sites for others to view the practices and for field training.

AQUATIC INVASIVE SPECIES (AIS)

In 2014, state legislation was passed that provides funds to counties for AIS prevention. Biannually the county receives funding for activities such as education, lake monitoring, and boat ramp inspections detailed in the Scott County Aquatic Invasive Species Prevention Plan (AIS Plan). The SWMO will work with county staff and other partners to implement the AIS Prevention Plan.

This strategy is designed to enable lake associations, lake improvement organizations or park entities to address curly-leaf pondweed control, rough fish (carp and black bullhead) and sustainable lake planning. Lakes where this strategy will be promoted include Cedar, McMahon, O'Dowd, Thole, Cleary, and Pleasant. Lakes with an approved Total Maximum Daily Load (TMDL) study showing curly-leaf pondweed as a major implementation plan element are Cedar and McMahon. It is also known to be an issue in Cleary Lake.

Rough Fish

In lakes where studies have demonstrated rough fish are a water quality problem, and where rough fish control is part of an overall comprehensive approach to improving lake quality, the SWMO will consider coordinating efforts, and sharing the cost. Cost share will be considered up to 50% with a \$5,000 per year maximum. Currently, Cedar Lake is the only lake with an approved TMDL showing carp as a major implementation plan element. However, recent studies sponsored by the SWMO (2017 Wein) have shown that the density is below 100kg/hectare, which is thought to be a threshold for ecological damage to the lake. Therefore, the SWMO is not planning major investments to further reduce carp densities in Cedar Lake.

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That said the SWMO will continue to work with the Cedar Lake Improvement District to implement on-going modest efforts to keep the densities below the aforementioned threshold.

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Curly-leaf Pondweed—Recreational Development Lakes

Local associations or improvement Districts will be eligible for 50% cost share up to \$5,000 toward the completion of whole lake aquatic plant management plans or sustainable lake management plans if curly-leaf pondweed or shoreland management is identified as a major implementation program element in a TMDL or Diagnostic Study. Upon completion of such a plan these organizations will be eligible for an additional 50% cost share match of other local funds for implementation of the plan up to the maximum budgeted amount for the year in Table 4.4 below. Without an approved plan, match from the SWMO will be limited to \$10,000.

Table 4.4. Curly-leaf Pondweed Cost Share

Year	Cost Share Maximum Amount	
	With Whole Lake Management Plan	Without Whole Lake Management Plan*
2019	\$25,000	\$10,000
2020	\$25,000	\$10,000
2021	\$25,000	\$10,000
2022	\$25,000	\$10,000
2023	\$25,000	\$10,000
2024	\$25,000	\$10,000
2025	\$25,000	\$10,000
2026	\$25,000	\$10,000

*Lakes that do not have a Whole Lake Management Plan

On-going funding will be contingent on reporting to the SWMO and on implementation of the plan. This assistance could be used for treatment of curly-leaf pondweed in near shore or open water areas associated with public parks, or private shoreland. Also, as of 2018, the MDNR no longer has a program to help finance treatment. The Scott County Aquatic Invasive Species Prevention Plan (AIS Plan) allows for up to \$12,000 of the MN Legislature funding allocation to be used for the treatment of curly-leaf. If the funding assistance from the MN Legislature continues, the annual treatments can be completed with the SWMO matching local partners' contributions according to Table 2.1. If the MN Legislature AIS Plan program funds are discontinued for any reason, additional local funds may be needed or the treatment funds from the SWMO reduced. The SWMO's past annual funding for curly-leaf management ranged from \$4,700 - \$39,027.

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Curly-leaf Pondweed—Natural Environment Lakes

The cost share percentage and maximum will be determined on a case by case basis for Natural Environment lakes. Currently McMahon (Carl's) Lake is the only Natural Environment lake the SWMO is permitted to treat. It is anticipated that the SWMO will partner with the Three Rivers Park District to obtain permits for, and fund treatment of Cleary Lake starting in 2019.

LOCAL WATER PLANS

In addition to requirements for Local Water Plans in Mn Rules 8410, the SWMO expects the Local Water Plans developed by LGUs to include the following information. LGUs are also strongly encouraged to identify and include watershed or stormwater related Capital Improvement Projects in their LWP. If not included they will not be eligible for assistance from the SWMO, and under current provisions will not be eligible for state Clean Water Funds.

Standards Implementation

LGUs need to adopt local controls equivalent to the SWMO Standards (Appendix D). The SWMO believes that the appropriate level for implementation and enforcement of the Standards is with the LGUs. Thus, the SWMO intends to implement the Standards through the Local Water Plan (LWP) process, and collaborate with other watershed jurisdictions as much as possible. To minimize redundancy, the SWMO will continue to work with LGUs to implement the revised Standards rather than starting a duplicate permitting program.

Floodplain Regulation

Each LGU will be required to demonstrate that it complies with state and local requirement for the NFIP as part of their LWPs, and will need to show similar protections for other areas at risk of flooding.

Local Flooding Concerns

This strategy consists of working with the LGUs to insure the completion of LWPs and the consideration of local flooding risks. The SWMO will assist LGUs with local flooding concerns as resources are available, but will not initiate these efforts.

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Stormwater Pollution Prevention Plans

The MS4 SWPPPs should be referenced in the LWPs to show the connection between implementing some of the Minimum Control Measures and similar water quality objectives of the LWPs and the SWMO Plan.

Street Sweeping

Local plans shall include a description of plans for the sweeping of public and private streets and parking lots. It is expected that LGUs will include a strategy prioritizing and scheduling street sweeping in their LWP. This strategy should emphasize early spring sweeping in critical areas adjacent to priority water bodies in order to reduce nutrients and chlorides entering surface waters.

Salt and Sanding Practices

This strategy consists of ensuring that the local water plans include detail of their salt and sand distribution best management practices. Specific details to be included in LWPs are the locations of storage sites and descriptions of material handling and source reduction practices. As stated in the TCMA Chloride Management Plan (MPCA, 2016), municipalities should begin with an assessment of the existing winter maintenance practices and design a strategy to improve practices. The purpose of the assessment is to determine where opportunities exist to make reductions in salt use. The MPCA's Winter Maintenance Assessment tool (WMAt) [https://stormwater.pca.state.mn.us/index.php/Winter_Maintenance_Assessment_tool_\(WMAt\)](https://stormwater.pca.state.mn.us/index.php/Winter_Maintenance_Assessment_tool_(WMAt)) was developed as a resource of all known salt saving best management practices (BMPs). This tool will allow municipalities to evaluate their current winter maintenance program at a very detailed level and create a customized plan for implementing salt savings.

REGIONAL STORMWATER

The SWMO believes that appropriately considered and designed regional approaches add efficiency. It also believes that accommodating flexibility is a means to enabling regional solutions. The SWMO strategy for enabling regional solution includes the following efforts:

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Regional Stormwater Facilities

This strategy consists of providing flexibility in the SWMO standards for using regional stormwater facilities as an alternative to individual on-site facilities. The criteria for utilizing regional basins can be found in section 2(f) of Standard D, in Appendix D.

Road Project Flexibility

This strategy provides flexibility for public linear road projects in meeting the spirit and intent of the SWMO Standards. The SWMO recognizes the unique challenges often posed by the application of its standards to the permitting of public linear projects, such as road expansions or new road construction. Often times, the direct application of the standards may not be financially feasible or a prudent expenditure of public funds due to right of way constraints or other factors. The SWMO will be flexible in the application of its standards so long as studied reasonable attempts are documented and made to provide an overall net result of the public project that is consistent with the Standards and will not cause negative downstream impacts.

Joint Studies or Assessments

This strategy consists of coordinating, planning and facilitating a regional approach through the completion of joint stormwater management studies where there are either existing or pending management issues. Three such studies are included in Table 4.2 where anticipated inventories and assessments are listed in the Information and Studies Strategy. These are the Campbell Lake (upper Picha Creek) Regional Stormwater Assessment, the Thole Lake Stormwater Assessment, and Ditch Multiple Purpose Assessments.

MAINTENANCE

The SWMO wants to ensure that benefits resulting from water resource improvements enabled under this Plan last into the future. This is true whether the improvement is a Tier 1 CIP installed by the SWMO, a Tier 2 CIP installed by others with financial assistance from the SWMO, or a cost share or incentive practice installed by a landowner. The previous Plan had a strategy for Capital

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Project Maintenance. In this Plan, the Maintenance Strategy is expanded to include efforts directed at maintaining all improvements enabled or required by the SWMO.

Maintenance of Cost Share and Incentive Practices

Land owners receiving cost share and/or incentives from the SWMO for the installation of practices will be required to enter into a contract with the SWMO or the Scott SWCD. This contract will require that they retain and maintain the practices for a specific term (10 to 15 years depending on the practice). Inspections will then be completed to assess whether maintenance is occurring. Guidance will also be provided to all participants, and technical assistance will be available. In addition, periodic classes will be held as part of the Scott SWMO's Education and Outreach Program, such as prairie or shoreline maintenance, to provide landowners the knowledge and tools to maintain their practices.

Tier 1 CIPs

The SWMO has designed an inspection and maintenance program for Tier 1 CIPs where the SWMO has lead implementation and is the holder of long-term easements. This effort consists of:

- 1) Setting up a GIS "asset management system" for tracking and recording inspections and maintenance,
- 2) Budgeting for, and
- 3) Completing maintenance when needed.

Tier 2 CIPs

The GIS asset management system will also be used to track SWMO inspections of Tier 2 CIPs. The SWMO intends to conduct periodic inspections of Tier 2 projects to track whether its investment is being maintained. In general, the SWMO anticipates that maintenance will be the responsibility of the lead partner. The SWMO will remind the partner of maintenance needs observed during inspections. Joint maintenance responsibilities can be negotiated with the SWMO as part of the initial agreement regarding construction of the improvement if there is good reason for sharing responsibility.

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Required Improvements

Maintenance of stormwater facility improvements completed with development and approved with permits shall be assured by the permitting authority in accordance with the Standards Strategy and the specific Standard for Stormwater Facility Maintenance. Specific language for this Standard can be found under criteria 5, 6, and 7 of Standard D, Standard E, and Section 4 of Standard H in Appendix D.

Existing Infrastructure, Stormwater Systems, and Public Ditches

There already exists a considerable amount of stormwater infrastructure in the SWMO. Maintenance of this infrastructure is the responsibility of the entity that constructed it, or if in a drainage and utility easement the City or Township that holds the easement, or the drainage authority if it is part of a public ditch.

The MDNR and private citizens have constructed a number of outlet structures on lakes, ponds and wetlands in the SWMO. The SWMO's position is that these are the responsibility of the MDNR or the respective private owner. However, the SWMO will coordinate with MDNR (or other outlet owners) as necessary to keep MDNR and owners informed of issues, potential problems and blockages that could affect lake levels and flooding. Similarly, the SWMO will coordinate with local LGUs and Townships on stormwater facilities and infrastructure located in drainage and utility easements. In emergencies, the SWMO may consider a more active role assisting LGUs, Townships, or the MDNR with the removal of obstructions or blockages, or stabilization of areas.

Unimproved Drainage Systems

There is also a considerable amount of "unimproved" or natural drainage ways, lakes, ponds and wetlands with natural overflows. The SWMO will not take an active maintenance role with these systems. In emergencies, or where negative water quality or flooding issues are threatened, the SWMO may consider a more active role in mitigating the impact or threat. This will be a discretionary decision of the SWMO. In making this decision the SWMO will consider:

- Whether there is a public benefit,

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- Whether others are better situated to address,
- The nature and type of risk (note the SWMO considers impacts to homes, businesses and public infrastructure the highest priority, next would be impacts causing or accelerating erosion and contributing to downstream water quality problems, with inundation of vacant or unimproved land the lowest),
- SWMO priorities,
- Probable consequences of inaction,
- Cost,
- Availability of cost sharing and partnering,
- Available resources, and
- Feasibility.

SUMMARY

This section describes 17 different strategies that will be implemented as part of this Plan update. In general, they continue many of the efforts and partnerships started under the previous plan. Main differences include: 1) a shift over time to practices that prevent impacts, moderate runoff, and build resiliency; 2) a shift over time to efforts that protect groundwater quality and quantity, and 3) simplification of some of the Standards to make them more consistent with State NPDES General Construction Permit requirements. Section 5 bundles these strategies into various SWMO programs and describes how and when they will be implemented.

SECTION 5 – IMPLEMENTATION

Section 5

INTRODUCTION

This Section describes roles and responsibilities, how the various strategies described in Section 4 are organized into the Programs that the Scott Watershed Management Organization (SWMO) implements, how progress will be evaluated, and presents a planning level budget for the duration of the Plan.

ROLES AND RESPONSIBILITIES OF THE SCOTT WATERSHED MANAGEMENT ORGANIZATION AND PARTNERS

The Metropolitan Surface Water Management Act (MN Statute 103B) defines specific authorities and requirements for different types of watershed management organizations. As a Joint Powers watershed management organization, Table 5.1 identifies those responsibilities as mandatory or discretionary, and the role SMWO will assume in each case.

Planning and zoning land use authority is regulated under the municipalities/LGUs, including Scott County for unincorporated areas. The SWMO does not exercise land use or permitting authority at this time. SWMO may assume a permitting program under the following circumstance:

The SWMO will start and operate a permitting program under the authority provided by MN Statute 103B.211 only where the Local Government Unit (LGU) is found to not to be implementing their approved and adopted Local Water Plan (LWMP). The SWMO will consider operating a permit program for the use and development of land when requested by the LGU. However, the SWMO's preference is for the LGUs to operate the permit programs, and the SWMO's first priority will be to work with the LGU for implementation at the local level.

During the 2009-2018 SWMO Comprehensive Water Resource Management Plan, all seven municipalities updated and adopted an approved LWMP.

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Table 5.1. Duties and Responsibilities of Joint Powers WMOs

Duties and Responsibilities	Joint Powers WMO	Scott Watershed Management Organization
Adopt a Watershed Management Plan	Mandatory	Adopts a Watershed Management Plan
Prepare an annual report	Mandatory	Prepares an annual report
Appoints an advisory committee	Mandatory	Appoints Watershed Planning Commission and invites Technical Advisory Committee members to meetings
Manage transferred drainage system	Discretionary	No role—SWMO is not the ditch authority
Receive drainage system improvement and establishment petitions	Discretionary	No role—SWMO is not the ditch authority
Adopt water management rules	Discretionary	Water management standards have been adopted by the SWMO (Appendix D). The SWMO will adopt Rules only if LGU's do not complete or implement approved and adopted LWMPs.
Receive petition for projects	Discretionary	Acts upon project requests received
Conduct hearing on annual budget	Discretionary	Conducts annual budget hearing
Hire employees	Discretionary	Employees are hired by Scott County
Enter into contracts and agreements	Discretionary	Enters into contracts and agreements as Scott County
Regulate development	Discretionary	No, development is regulated by municipalities and Scott County. The SWMO will adopt Rules only if LGU's do not complete or implement approved and adopted LWMPs.
Administers the Wetland Conservation Act	Discretionary	No, other LGUs have accepted authority, or the Scott SWCD has delegation authority
Initiates projects	Discretionary	Initiates projects
Approve local water management plans	Mandatory	Approves LWMPs
Finance authority	Discretionary	Scott Watershed Management Organization Special Taxing District

PROGRAMS

The SWMO has nine Programs that it implements. These are:

- 1) Administration
- 2) Coordination
- 3) Education and Outreach
- 4) Inventory and Assessment
- 5) Land and Water Treatment

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- 6) Maintenance
- 7) Monitoring
- 8) Planning
- 9) Regulation

Table 5.2 shows how each of the 17 strategies described in Section 4 fit into these Programs. Detailed descriptions of the Programs are provided below.

Table 5.2. Matrix showing how various Strategies are implemented through Programs.

Strategies	Programs								
	Administration	Coordination	Education & Outreach	Inventory & Assessment	Land & Water Treatment	Maintenance	Monitoring	Planning	Regulation
Aquatic Invasive Species (AIS)			√		√			√	
Buffers, Habitat, Diversity			√		√				
Capital Improvement		√	√		√	√		√	
Coordination	√	√	√					√	
Cost Share & Incentives			√		√	√			
Information & Studies			√	√			√	√	
Innovative			√		√				
Living Cover			√		√				
Local Water Plan								√	√
Maintenance		√				√			√
Monitoring			√				√		
Pollutants			√				√		√
Regional Stormwater								√	√

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Table 5.2. Matrix showing how various Strategies are implemented through Programs.

Strategies	Programs								
	Administration	Coordination	Education & Outreach	Inventory & Assessment	Land & Water Treatment	Maintenance	Monitoring	Planning	Regulation
Standards		√							√
Targeting			√		√			√	
Technical Assistance			√		√				
Water Conservation			√						

Administration

Efficient administrative efforts are a necessary to achieving the goals set by the SWMO Comprehensive Water Resources Management Plan and the SWMO Board. Scott County provides administrative staffing to take care of the day-to-day operation of the SWMO as well as implementation of the other Programs. Finally, administrative efforts also include board oversight, legal, audit, vehicle expenses, and bookkeeping services as well as office space, office equipment, information systems, and training. Administration is an annual on-going effort.

Coordination

This element implements strategies that involve staff coordination with other federal, state, and local agencies as well as coordination of a technical advisory committee. Further detail is described in Section 4 under the Coordination Strategy.

Education and Outreach Program

The Education and Outreach Program has a supporting role for most of the selected strategies (Table 5.2). Much of the SWMO's Education and Outreach Program is implemented through the Scott Clean Water Education Program (SCWEP), which began in 2010. Each year momentum continues to build with programs woven into outreach activities among many partnering

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agencies. Each year a focus is created for the workplan on improving upon and growing activities the current partnership believes provide the greatest, most cost-effective impact in Scott County. The programs goal is to make clean water choices second nature for all who live and work in Scott County. SCWEP has incorporated the goal into the marketing materials using the theme of "Clean Water Starts with Me!" Three general audiences are targeted, agriculture/rural landowners, urban and lakeshore residents and community groups/institutions. Annual activities coordinated by the program include: workshops, Conservation Leaders program, Outdoor Education Days, SWMO/SWCD Conservation Tour, and a traveling display at outreach events.

SWMO Education and Outreach efforts in addition to SCWEP include:

- Maintenance of the Sand Creek Story Map <http://www.scottcountymn.gov/1700/Sand-Creek-Watershed-Story-Map>
- A Watershed Stewards mini-grant program offered annually to individuals or organizations get others in the community involved;
- Preparation of articles and stories for publication in the bi-monthly county newsletter the SCENE;
- Preparation and publication of project fact sheets;
- Operation and support for the Watershed Planning Commission;
- Production of an annual newsletter that is distributed by email, paper copies are made available at the Government Center and it's posted on our website; and
- Maintenance of the SWMO webpages on the County's website.

Specific focus areas for this plan are stories that: 1) hold up leaders who are implementing conservation, and 2) demonstrate success. Additionally, topical areas that will be emphasized include soil health, and de-icing practices.

Inventory & Assessment

This element implements the Information and Studies Strategy in Section 4. The information gathered allows the SWMO to provide support and necessary information to make management decisions. In general, the SWMO anticipates that it has the capacity to handle one or two

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inventory assessment efforts per year. In 2019, the SWMO anticipates that the Sand Creek Flood Protection Feasibility Analysis started in 2018 may continue. The SWMO also hopes to start the Thole Lake Outlet Stormwater Assessment, and McMahon Lake Outlet Feasibility Assessment. The Campbell Lake Regional Stormwater Assessment is the next highest priority and is targeted for completion in 2020 jointly with the City of Prior Lake. Additional future assessments may include those identified and prioritized in Table 4.2, or new assessments identified as necessary to efficiently pursue efforts identified in forthcoming TMDLs and the Lower Minnesota River Basin Watershed Restoration and Protection Strategy (WRAPS).

Monitoring

The purpose of the SWMO water quality monitoring program is to track long-term water quality trends; provide a scientific basis to identify, target and design programs and projects to meet goals; and to evaluate project and program effectiveness and progress towards water quality goals. Details regarding monitoring are provided in Section 4. Table 5.3 provides a summary of sampling parameters and locations for streams and lakes. The SWMO will rely on monitoring currently being completed by the Metropolitan Council on the Credit River and Sand Creek for long term trends for streams. This will be augmented with additional stream water monitoring completed on a rotating cyclic basis that moves monitoring sites around from year to year focusing on different watersheds called synoptic monitoring to identify “hotspots.” Detailed diagnostic monitoring will also be completed at multiple sites on Sand Creek and the Credit River in 2023 or 2024. Lake monitoring will largely be completed through volunteer efforts under the Metropolitan Council’s CAMP program annually. For groundwater, the SWMO will rely on data from test kits sold by the County, augmented twice during the plan cycle with a designed monitoring effort of 60 to 100 rural wells across the SWMO. This effort will test for nitrates, atrazine (by amino assay), arsenic, and chloride.

Data collected will be analyzed annually. The exception is the Metropolitan Council data from Sand Creek and the Credit River. For these sites the SWMO will review the data annually, particularly the flow data and will attempt to calculate runoff yield on an annual basis. However, trend analysis is beyond the capabilities of the SWMO. For trend analysis the SWMO will rely on the Metropolitan Council who is planning to update trends analyses once every 5 to 10 years.

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The SWMO will also work closely with the MDNR and its partners to complete annual aquatic plant surveys on lakes that are treated for curly-leaf pondweed. Surveys will typically be completed both early and late during the growing season. Results will be reviewed annually and reported in the Annual Report and Newsletter.

Maintenance

The SWMO has completed over a dozen capital improvement projects since 2000, and more are anticipated with this Plan. The SWMO is committed to maintaining all SWMO capital improvements to ensure they function as originally intended/designed. The Maintenance Strategy in Section 4 details who is responsible for inspections, operation and maintenance of Capital Improvement Projects (CIPs), Technical Assistance & Cost Share (TACS) projects, existing infrastructure, stormwater systems, natural watercourses, and public ditches.

As indicated in Section 4, the SWMO is working with our Geographical Information System (GIS) staff to create an “asset management system” to track and record inspections and maintenance on CIPs. This will enable the SWMO to make sure maintenance is completed on a routine basis and its investment is protected.

There are also provisions for insuring and enabling the maintenance of projects enabled by the SWMO through the cost share and incentive program as described under the Maintenance strategy in Section 4 and implemented through the Technical Assistance and Cost Share Program described below.

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Table 5.3. SWMO Main Sampling Parameters and Locations for Lakes and Streams

Monitoring Location	Station Type	Monitoring Type	Parameter	Sampling Period	Frequency
Big Possum Creek	Stream	Field	E. coli	May – September	None planned
Brewery Creek	Stream	Synoptic *Field	TSS, TP, E. coli, NO3, *DO, *Temp, *pH, *Conductivity, *Turbidity	May – September	Synoptic monitoring to be completed 2x during Plan cycle
County Ditch 10	Stream	Synoptic *Field	E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity	May – September	Synoptic monitoring will be completed once during Plan cycle as part of the Sand Creek watershed synoptic monitoring effort
Credit River	Stream	Synoptic *Field	Chloride, E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity	May – September	Synoptic monitoring will be completed once during Plan cycle
Credit River (and one upstream site)	Stream	*Field and Lab	Chloride, E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity, TP, TDP, chlorophyll-a, BOD, NO3 & NO2, TSS, VSS, and continuous stage/flow	Full year	2023 or 2024
Porter Creek	Stream	Synoptic *Field	Chloride, E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity	May – September	Synoptic monitoring will be completed once during Plan cycle as part of the Sand Creek watershed effort
Porter Creek at Xanadu	Stream	*Field and Lab	Chloride, E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity, TP, TDP, chlorophyll-a, BOD, NO3 & NO2, TSS, VSS, and continuous stage/flow	Full year	2023 or 2024
Raven Stream	Stream	Synoptic *Field	Chloride, E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity	May – September	Synoptic monitoring will be completed once during Plan cycle as part of the Sand Creek watershed effort
Raven Stream at R64	Stream	*Field and Lab	Chloride, E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity, TP, TDP, chlorophyll-a, BOD, NO3 & NO2, TSS, VSS, and continuous stage/flow	Full year	2023 or 2024
Roberts Creek	Stream	Synoptic *Field	TSS, TP, E. coli, NO3, *DO, *Temp, *pH, *Conductivity, *Turbidity	May – September	Synoptic monitoring to be completed 2x during Plan cycle

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Table 5.3. SWMO Main Sampling Parameters and Locations for Lakes and Streams

Monitoring Location	Station Type	Monitoring Type	Parameter	Sampling Period	Frequency
Sand Creek	Stream	Synoptic *Field	Chloride, E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity	May – September	Synoptic monitoring will be completed once during Plan cycle
Sand Creek at County Road 2	Stream	*Field and Lab	Chloride, E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity, TP, TDP, chlorophyll-a, BOD, NO3 & NO2, TSS, VSS, and continuous stage/flow	Full year	2023 or 2024
Sand Creek Tributary site ST2	Stream	*Field and Lab	Chloride, E. coli, *DO, *Temp, *pH, *Conductivity, *Turbidity, TP, TDP, chlorophyll-a, BOD, NO3 & NO2, TSS, VSS, and continuous stage/flow	Full year	2023 or 2024
Cedar	Lake	Surface sample Lake Level	TP, TKN, Chla, Secchi	April – October	Annually
McMahon	Lake	Surface sample Lake Level	TP, TKN, Chla, Secchi	April – October	Annually
O'Dowd	Lake	Surface sample Lake Level	TP, TKN, Chla, Secchi	April – October	Annually
Thole	Lake	Surface sample	TP, TKN, Chla, Secchi	April – October	Annually

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Planning

The Planning element includes anticipated plan amendments. Section 6 includes the general and minor amendment procedures for this Plan. Minor amendments and updates to the CIP are expected every two years. Minor amendments are also anticipated as various feasibility studies are completed, particularly:

- The Lower Minnesota River Watershed future TMDLs and Watershed Restoration and Protection Strategy (WRAPS).
- Flood protection feasibility study with the City of Jordan

This element also includes the completion of the next generation Plan update. Outcomes from monitoring and assessments of the 2019-2026 Plan, and assessment of metrics, will determine the direction and focus of the next Plan update.

Regulation

This element implements strategies related to the development and enforcement of Standards (Appendix D), and the review and oversight of Local Water Management Plans (LWMPs). Costs for the regulatory program element in Table 5.6 are primarily for staff time to work with the LGUs on LWMP implementation and tracking.

Standards. The SWMO has prepared Standards that reflect the goals and policies of the SWMO as discussed in Section 3. These Standards are provided in Appendix D and form the basis for regulatory controls within the SWMO for implementing this Plan. Local Water Plans and official local controls will be reviewed to assure they are equivalent to these Standards as well as the goals and policies in Section 3. The SWMO only anticipates promulgating Rules if LGUs do not complete and implement approved and adopted LWMPs. The SWMO believes that implementation of the Standards is best achieved through the LWMPs and official controls of the LGUs.

Where necessary, changes were made to incorporate the new regulatory strategies, and address some of the problem areas encountered from implementing the past Rules.

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Changes to the regulations, criteria, waiver and exceptions to incorporate the new strategies are shown as underline strikeout in the appendix.

Enforcement. The SWMO will not promulgate Rules as long as LGUs complete their new LWMPs and implement them according to the requirements of this Plan and Minn. Stat. Chapter 103B subd. 211. However, in the case permitting does default to the SWMO, the SWMO will promulgate Rules and begin a permitting program using the authority of a Watershed District to regulate land use under Minn. Stat. Chapter 103D.

More detail on Administration and Enforcement of LWMPs can be found in Section 6 Administration.

Land & Water Treatment

Land and Water Treatment Program includes three subprograms: 1) the Aquatic Invasive Species (AIS) Program; 2) the Technical Assistance and Cost Share (TACS) Program; and 3) the Capital Improvements Program (CIP). This Program is where most of the on-the-ground implementation of physical practices are completed. As such it addresses many of the selected Strategies (Table 5.2), and typically receives the bulk of the SWMO's resources in the annual budgets.

Aquatic Invasive Species Program. The SWMO recognizes the need to manage non-native aquatic invasive species that affect water quality and the ecological health of the lake, in order to achieve desired outcomes. As stated in Section 4 under AIS Strategy, the SWMO will continue to partner with stakeholders and the MDNR to develop lake vegetation management plans (LVMP) with lake associations and lake improvement districts on lakes where a diagnostic study or TMDL shows that the infestation is a significant contributor to an impairment. However, with respect to treatment of the problem these types of in-water projects are considered Level 3 (Table 3.4) for SWMO participation. Level 3 is where the SWMO considers resolution of the issue a priority and is willing to cost share, but feels there is a shared responsibility.

Curly-leaf Pondweed. The SWMO will continue to use quantitative monitoring (point-intercept method) and Global Positioning System (GPS) mapping to assess lake aquatic

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plant communities on lakes we are managing for curly-leaf pondweed. The SWMO will continue to perform aquatic plant management activities (herbicide treatments or phosphorus inactivation) where aquatic plants have a demonstrated negative effect on water quality. Currently the SWMO is partnering on treatments for Cedar, O'Dowd, Thole, and McMahon Lakes. It is anticipated that an additional partnership will be started for Cleary Lake in 2019, and that efforts for Cedar Lake will be declining to a maintenance level.

Rough Fish. Currently, Cedar Lake is the only lake with an approved TMDL that showed that rough fish are a water quality problem with the limited data available at that time. In 2017, the SWMO hired a consultant to study common carp in Cedar Lake to determine if the original estimates were correct and to inform future management decisions. The results showed that carp are not as large of an issue as originally estimated and that the current estimated population is below the threshold at which carp are damaging to lake ecosystems. The report recommended continuing to remove 10% of carp from the lake annually. The SWMO will continue the rough fish management and partner with the Cedar Lake Improvement District on carp removal as detailed in Section 4 as a means of addressing this recommendation.

Technical Assistance & Cost Share (TACS) Program. The TACS program is one of several programs operated by the SWMO to implement strategies involving land and water treatment. The program is used to enable practice implementation on both public and private land. It is the vehicle through which many of the strategies in Section 4 are implemented (Table 5.1). The year to year emphasis for the Program is guided by the Targeting Strategy detailed in Section 4. In 2019, it is anticipated that the Program will focus on finishing up grant funded efforts currently underway in the Sand Creek watershed and Subwatershed Assessment of the Cleary Lake subwatershed will be completed in 2018, with targeted outreach to landowners starting in 2020. Other targeted efforts over this Plan cycle include targeting:

- Practices known to be effective at controlling nitrate leakage in the Drinking Water Supply Management Area (DWSMA) for Belle Plaine.

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- Well decommissioning in Drinking Water Supply Management Areas and high susceptibility areas shown on the Scott County Geologic Atlas that are located in the SWMO.
- Other areas identified in pending TMDLs and the Lower Minnesota River Basin WRAPS.

There will also be a shifting emphasis from structural practices that control erosion and sediment to practices that are more preventive, promoting soil health, living cover, and resiliency.

Cost Share and Incentives will be provided in accordance with the Conservation Practice Financial Assistance Program Policy Manual or PPM. A copy of the 2018 PPM is included as Appendix E. The following provides a list of guiding principles either existing or recommended that will guide implementation, and the planned annual updates of the PPM.

- The program is designed with the intent of enabling consistent administration, services and opportunities for landowners throughout the entire county, not solely the SWMO.
- Practice installation is voluntary and local government Boards involved have the right to deny applications at their discretion.
- Cost share and incentive rates will be set in proportion to the public benefit resulting from the practice(s).
- Technical assistance for conservation improvements may be provided regardless of the availability of financial assistance.
- Cost share is appropriate when both public and private parties benefit.
- Cost share participants are expected to have some “skin in the game” (e.g. paying a portion of out-of-pocket project costs, dedicating land for conservation purposes, and/or providing in-kind services).

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- Incentives are appropriate when landowners voluntarily limit the use of their land for conservation purposes, or initiate management/behavioral changes that benefit the public.
- Incentives are generally not appropriate for promoting practices on public lands, but may be allowed if there is a loss of other revenue due to implementation of the practice.
- The program will allow varying levels of financial assistance depending on increasing levels of landowner/applicant participation (i.e., for example if the applicant agrees to implement a cover management system in combination with the construction of a practices they could be eligible for a higher cost share rate).
- The program will encourage long-term conservation planning and discourage funding single practices without addressing the larger or root cause of the environmental concern.
- Cost share and incentives are used to initiate a change in land management practice, but not to sustain or maintain the change, which means program funding should not be used to re-new practices after contracts expire. Exceptions will be considered on a case-by-case basis for practices that are determined by the SWMO to provide a substantial public benefit, or if alternative programs are no longer available due to the loss of cropping history.
- When available and reasonably accessible, other local, state and/or federal funding will be sought before SWMO funds. When other local, state and/or federal funds are limited, or using multiple sources of funding is advantageous, then SWMO funds may be used in combination with those other funds.
- Financial assistance will be structured to provide greater incentive for the installation of practices that address runoff reduction, priority pollutants, and priority water bodies identified in this plan.

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- Practices and applications that have greater quantifiable public benefits will be given higher priority for funding.
- The approval process will be streamlined in proportion to the following: complexity of the proposed project, cost effectiveness, certainty of public benefit, and consistency with the priorities of this Plan.
- Financial assistance rates advertised are maximums and local government Boards have discretion to approve applications at any rate less than the maximum.
- Marketing and outreach will target watershed areas, specific practice locations, and/or practice types identified as priorities in the strategies identified in Plan Section 3.
- Program policies and procedures will be reviewed and updated annually, but will remain consistent with these guiding principles.
- The approval process will be transparent, i.e. all decisions and recommended administrative actions will be made in a public meeting setting.
- The SWMO can leverage SWMO tax dollars to obtain additional dollars from state and federal grants to fund practices in the upstream portions of the Sand Creek watershed outside the SWMO, since the SWMO is downstream and residents benefit from improvements in the upstream portions of the watershed.
- Where state or federal funding is not used the SWMO may authorize variances from normal design standards and specifications (e.g. USDA NRCS Field Office Technical Guide and Engineering Field Handbook), subject to reasonable justification as determined by the local government Board and potentially reduced financial assistance.
- To be eligible for program funding, applicants must be in compliance with, or working towards being in compliance with (as evidenced by a signed conservation plan), applicable environmental regulations on the farm/fields where the application applies.

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- Responsibility for continuing and maintaining the practice(s) must be recorded against the property in accordance with the term agreed to in the application and contract if the total amount of public financial assistance is significant, as determined by the SWMO.

It is the policy of the SWMO to implement the TACS program through partnership with the Scott SWCD. The SWMO will contract with the SWCD to administer and lead program implementation, including but not limited to approving applications that meet certain specified criteria. It is expected the SWCD will develop a single, countywide Conservation Practice Financial Assistance Program Policy Manual (PPM) to help provide for consistent and efficient administration, services, and opportunities for landowners throughout the entire county. If there are deviations between SWMO policies and procedures and the countywide PPM, they will be identified and incorporated in the PPM by addendum and adopted by the SWMO and SWCD. Policies and procedures in the addendum will supersede those in the countywide PPM for any project utilizing SWMO funding. The SWMO will regularly review performance to ensure the program is being operated efficiently and effectively, and in accordance with this Plan.

Capital Improvements Program. The SWMO's implementation plan includes a Capital Improvement Program (CIP) which identifies capital projects needed to address SWMO priorities. It includes both Level 1 projects (Table 3.4) that the SWMO considers high priority and is willing to lead, finance or provide incentives; and Level 2 projects that the SWMO is willing to support technically and financially, but will not lead implementation. Table 5.4 lists the various CIPs, provides planning level budgets, and implementation schedules. Level 1 projects are listed as Tier 1 CIPs, while Level 4 programs are shown as Tier 2 CIPs. Budgets do not include grants. The SWMO will aggressively pursue grants to expand this program element beyond the budgets presented. The SWMO anticipates completing minor amendments approximately every two years to include the result of these studies and assessments, and update the CIP. The policy guiding selection of CIPs and determination of Tier levels is provided in the Capital Improvement Strategy in Section 4.

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Table 5.4. SWMO Capital Improvement Program

Project	Description	Cost Estimate	Schedule
Tier 1			
Helena Twp Section 2 Wetland Bank	Potential wetland bank by BWSR, Scott County Transportation and Scott SWCD with potential to incorporate flood storage using additional SWMO funds.	\$100,000 to \$120,000 Supplemental funding to incorporate modest amount of flood storage	Feasibility and Design 2018 Construction 2019
Cedar Lake Wetland Restoration/Wet Detention Basin	Identified in subwatershed analysis of Cedar Lake watershed; carried over from previous Plan	\$66,000 to \$100,000	Landowner contact made, may be interested in the future. Schedule unknown
Cedar and McMahon Lakes Alum Treatments	Identified as part of approved TMDL. Carried over as a CIP from previous Plan.	Cedar Lake: \$1,100,000 for two treatments* McMahon Lake: \$175,200 for two treatments	Timing for the treatments of Cedar Lake is based on adaptive management linked to success of other efforts. McMahon Lake treatment has been suspended unless the lake again becomes impaired.
Sawmill Lane Near Channel Sediment Control	One of a number of near channel capital projects identified in current Plan. Expect to complete in 2018, but included in case of delay.	\$425,000**	Feasibility and Design 2017/2018 Construction 2018
Helena-Broadway Near Channel Sediment Control	One of a number of near channel capital projects identified in current Plan. Currently getting a second opinion on cost and feasibility. If cost and feasibility change significantly, it might be removed from the list.	\$600,000 Some grant funding available from USEPA Section 319 grant, and potentially from the Sand Creek targeting grant	Feasibility 2018 Design 2018/2019 Construction 2019, 2020 or 2021

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Table 5.4. SWMO Capital Improvement Program

Project	Description	Cost Estimate	Schedule
NW McMahon Lake Stabilization and Wetland	Project to stabilize a head cutting gully and restore a prairie in a cropped area NW of McMahon Lake. The combination of practices make it a larger effort than typically handled by the TACS program. It is a priority project for the SMWO because of it benefit to McMahon Lake.	\$80,000	Landowner contacted in 2017. Waiting for a decision. Schedule unknown
Salisbury Hill (CR51) Ravines*	Unstable Ravines are contributing large amounts of sediment to the Minnesota River and impacting county road maintenance. This project was included as a CIP in the previous Plan, but has been delayed because of changing priorities from the 2014 disaster, and waiting for decisions about the future of roads in the area.	\$750,000 to \$1,500,000 depending on option selected for implementation	Schedule unknown. Waiting for decisions about roads in the area.
Blakeley Park Stabilization	Scott County Parks has land in Blakeley Park that has some erosion and small amount of mass wasting. Project will install upland practices and address the mass wasting (see Scott County Parks Improvement Program (PIP) 2018-2022).	\$130,000 Anticipate pursuing Clean Water Funds and Cost share with Scott County Parks	Feasibility and Design 2019 Construction 2020
Lower Picha Creek Ravine Project	Next priority stabilization project identified as part of the Sand Creek Near Channel Sediment Reduction Feasibility	\$450,000	Feasibility study and Preliminary Design & Clean Water Fund Grant application 2019; Construction 2020 (or later depending on grant availability)

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Table 5.4. SWMO Capital Improvement Program

Project	Description	Cost Estimate	Schedule
<u>Purchase Sand Bag Filling Machine</u>	<u>Areas of Scott County and the Scott Watershed Management Organization are at risk of flooding that presents a danger to the health and welfare of residents and businesses. This is particularly true for the spring of 2019 given the snow pack that has accumulated. As of March 7, 2019 the National Weather Service indicated that the probability of meeting major flood stage on the Minnesota River at Savage is near 91%, while at Jordan it is 50%.</u>	<u>\$25,000</u>	<u>Spring 2019</u> <u>Emergency Declaration,</u> <u>Resolution No. 2019-030, March</u> <u>19, 2019</u>
<u>Helena Twp Section 3 Near Channel Sediment Control Stabilizations</u>	<u>Project consists of stabilizing several actively eroding stream bank sites along Sand Creek in this reach. These sites are located at the upper end of the knick zone in the Middle Sand Creek Subwatershed where total suspended solids (TSS) yields are 10 to 15 times higher than other subwatersheds.</u>	<u>\$200,000 to \$300,000</u> <u>depending on the</u> <u>number of sites and the</u> <u>design</u>	<u>Design: Spring 2019</u> <u>Construction:</u> <u>Fall/Winter 2019</u>

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Tier 2			
Blaha Ravine	This ravine stabilization project has been discussed with the City of Belle Plaine in the past; they have now included it as an official request in the letter of issues submitted to the SWMO at the start of the Plan update process. The SWMO acknowledges this will have some pollutant loading reduction to the Minnesota River, but the reduction is small compared to the whole basin and thus it is listed as a Tier 2 project.	\$234,000 (2016 estimate) Unknown whether SWMO support will be financial, technical, grant writing or a combination	City of Belle Plaine to lead.
Chestnut Ravine	This ravine stabilization project has been discussed with the City of Belle Plaine in the past; they have now included it as an official request in the letter of issues submitted to the SWMO at the start of the Plan update process. The SWMO acknowledges this will have some pollutant loading reduction to the Minnesota River, but the reduction is small compared to the whole basin and thus it is listed as a Tier 2 project.	\$102,000 (2016 estimate) Unknown whether SWMO support will be financial, technical, grant writing or a combination	City of Belle Plaine to lead.
City Center/Phillips Square Stormwater Improvements	This is a project in New Prague converting a gravel parking area near East Raven Stream to parkland, paved parking and stormwater facilities. It will reduce phosphorus loading to Raven Stream, but because of the cost effectiveness and lack of receiving water analysis, it is listed as a Tier 2 project. If TMDLs and the WRAPS currently being completed by the MPCA add the necessary detail to document significant benefits to Raven Stream, the SWMO could consider moving to a Tier 1 project.	Construction Cost \$434,000*** (2018 estimate) Unknown whether SWMO support will be financial, technical, grant writing or a combination	City of New Prague to lead

* Will only be completed with significant grant support.

** Not included in planning level budget Table 5.6 since these are included in the 2018 budget. If delayed to 2019 will roll over unused funds.

*** Estimate provided by Chris Cavett, P.E., SEH Inc., via email dated June 26th, 2018.

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EVALUATING OUR PROGRESS

The SWMO is committed to being accountable, and to learning and adapting quickly as a means of continuous improvement. To achieve this commitment the SWMO has embraced the development of metrics for most of its programs. It has also developed several overall resource based metrics. They are called Key Program Indicators (KPIs) and are generally of two types: 1) those that measure how much is being accomplished, and 2) those that reflect how effectively cumulative outcomes are being achieved. Table 5.5 presents both types of KPIs for the SWMO as a whole, as well as for specific programs. Specific KPIs have not been developed for the Coordination or Planning Programs since these offer support to other programs; and the real test of effectiveness of these is reflected in cumulative results of the other programs.

The KPIs will be calculated annually (with the exception of stream water quality trends, and landowner survey responses). They will be used by the SWMO to learn how to improve and adapt, for annual budget decisions, as information for writing education and outreach stories, and reported in the Annual Report and Newsletter. Stream trends as discussed previously will be updated by the Metropolitan Council every 5 to 10 years. Water clarity as a percent of the state secchi transparency standard for Cedar and O'Dowd Lakes has also been selected by the County as one of its Community Indicators and will be reported to County residents and businesses annually in the County's Public Report.

In addition to annual assessment of KPIs as discussed above, the SWMO will complete more detailed program assessments every two to three years. These assessments will compare progress made on the various strategies and programs, with what is listed and scheduled in the Plan.

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Table 5.5. Program Measures

Program	How much are we doing?	How well are we doing?
Overall Resource Outcomes	<ul style="list-style-type: none"> Lbs of TP reduced Tons of Sediment reduced Acre-feet of runoff reduced 	<ul style="list-style-type: none"> Runoff yield (Sand Creek and Credit River) Pollutant concentrations compared with applicable standards % water clarity standard for Cedar, O'Dowd, McMahon and Thole Lakes Fraction of % load allocation reduction goals achieved* Concentration trends for Sand Creek and Credit River** % Well test kits reporting NO3 concentrations over 10 mg/L # of new AIS infestations
Administration	<ul style="list-style-type: none"> Administrative cost 	<ul style="list-style-type: none"> % Administrative cost/entire SWMO annual budget
Education & Outreach	<ul style="list-style-type: none"> # of events/workshops # of participants Number of articles # of WPC meetings 	<ul style="list-style-type: none"> % surveyed responding "yes" as having personal responsibility*** % surveyed responding they have adopted conservation*** % of WPC meetings completed as planned
Inventory & Assessment	<ul style="list-style-type: none"> # of studies/assessments completed 	<ul style="list-style-type: none"> % of studies completed as scheduled
Land & Water Treatment	<ul style="list-style-type: none"> Lbs of TP reduced Tons of Sediment reduced Acre-feet of runoff reduced Acres of curly-leaf pondweed (selected waterbodies) Number of types of landowner assistance requests Number and types of practices approved/implemented 	<ul style="list-style-type: none"> \$/lb of TP reduced \$/Ton of TSS reduced \$/acre-foot of runoff reduced % area nuisance curly-leaf pondweed coverage (selected lakes)
Maintenance	<ul style="list-style-type: none"> # of inspections Cost of maintenance 	<ul style="list-style-type: none"> % of inspections completed as scheduled Design life of practices achieved without major re-investment/design life planned
Monitoring	<ul style="list-style-type: none"> Completion of monitoring as scheduled in Table 5.3 	<ul style="list-style-type: none"> Completion in accordance with QA/QC protocol of the SWMO
Regulation	<ul style="list-style-type: none"> # of LWMP approved # of LGU meetings 	<ul style="list-style-type: none"> % of LWMPs approved % of LGU meetings as planned

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Table 5.5. Program Measures

Program	How much are we doing?	How well are we doing?
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*For example, interim goal over the course of this Plan for TSS reduction in Sand Creek is to achieve 40% of the necessary load reduction as established by previous studies (Table 3.4). In this case, this measure would show the estimated fraction of the 40% reduction achieved during the reporting year, and overall under the Plan.

**Relying on the Metropolitan Council to complete periodically.

***Based on survey to be completed toward the end of the plan cycle and compared with results from a survey being completed in 2018, and one previously completed in 2011.

FINANCING IMPLEMENTATION OF THE PLAN

Table 5.6 lists the components of the SWMO's implementation program, the planned implementation schedule, and a planning-level cost estimate (in 2018 dollars) for each component. The budget numbers presented are planning level and are subject to annual review and approval by the SWMO Board. This is important since the budgets presented do not include activities or capital improvements that may be added as a result of anticipated plan amendments. The budgets also do not include cost share agreements with others unless it is reasonably certain that the agreed upon cost share activity will occur. For example, is it reasonably certain that the agreement with the Cedar Lake Improvement District will continue for curly-leaf pondweed treatment, and the SWMO will continue to lead vendor contracting for the effort. Thus, matching revenue was included from the CLID as well as the combined expense. The same is true for the partnership with the O'Dowd Chain of Lakes Association curly-leaf pondweed treatment partnership. Conversely, the SWMO anticipates partnering with the Three Rivers Park District for similar treatments on Cleary Lake starting in 2019. The expectation is that the Park District will lead vendor selection and contracting, and the SWMO will provide cost share. Thus, the budget includes an anticipated expense by the SWMO to reimburse the Park District, but budget in Table 5.6 does not include the Park District's share since the full expense is not going through the SWMO.

The budgets also only include grants that are known or reasonably certain. This as a telling effect on the budgets presented since the first two years of the new Plan (i.e., 2019 and 2020) the SWMO has a significant amount of known grant income from the Sand Creek Targeted Grant and from a USEPA Section 319 Grant. However, both of these grants will expire in 2020.

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These grants have provided the SWMO with additional capacity to implement programs, but when they end, they will significantly decrease the amount of resources available to the SWMO. Program activity will reduce at this time unless there is additional state or federal assistance. The state legislature, through the Board of Water and Soil Resources, has enabled a pilot Watershed Based Funding effort starting in 2018 where roughly \$750,000 of Clean Water Funds will be split between local units of government that have state approved water plans in Scott County. However, that split is yet to be determined, and the SWMO's share is not shown in the Table 5.6. *[Note to reviewers: Funding splits will be resolved before the second review period and will be included at that time, but this funding is a pilot and is only certain for two years.]*

Table 5.6 shows expenses exceeding revenue for all Plan years. This is without amendments that may be completed adding additional efforts in response to the completion of TMDLs, the Lower Minnesota River Basin WRAPS, and local Subwatershed Assessments. It is the intent of the SWMO to aggressively pursue grants or other resources that support the goals and policies of the SWMO such that implementation expectations can be met or exceeded. Pursuit of grants is not only based on a desire to achieve local goals, but also as stated previously, is because the SWMO believes the state and federal government share responsibility for achieving many of the outcomes. If the SWMO is not successful with grants, some of the CIPs will be delayed or deleted.

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Table 5.6. Implementation Plan Table

Program	2019	2020	2021	2022	2023	2024	2025	2026	Totals
Expenses									
Administration	\$127,100.00	\$130,277.50	\$133,534.44	\$136,872.80	\$140,294.62	\$143,801.98	\$147,397.03	\$151,081.96	\$1,110,360.33
Land & Water Treatment									
AIS	\$85,000.00	\$87,125.00	\$89,303.13	\$72,535.70	\$74,349.10	\$76,207.82	\$78,113.02	\$80,065.84	\$642,699.61
TACS	\$578,700.00	\$553,075.00	\$573,401.88	\$606,986.92	\$607,836.59	\$625,957.51	\$630,356.45	\$654,040.36	\$4,830,354.71
CIPS	\$567,725.00	\$464,725.00	\$312,543.13	\$360,456.70	\$364,468.12	\$368,579.82	\$372,794.32	\$427,114.18	\$3,238,406.27
Monitoring	\$15,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$85,000.00	\$32,000.00	\$20,000.00	\$-	\$212,000.00
Education & Outreach	\$100,000.00	\$102,500.00	\$105,062.50	\$107,689.06	\$110,381.29	\$113,140.82	\$115,969.34	\$118,868.58	\$873,611.59
Regulation	\$3,500.00	\$3,587.50	\$3,677.19	\$3,769.12	\$3,863.35	\$3,959.93	\$4,058.93	\$4,160.40	\$30,576.41
Inventory	\$80,000.00	\$25,000.00	\$25,000.00	\$15,000.00	\$35,000.00	\$60,000.00	\$80,000.00	\$25,000.00	\$345,000.00
Planning	\$7,500.00	\$7,687.50	\$7,879.69	\$8,076.68	\$8,278.60	\$8,485.56	\$8,697.70	\$60,165.14	\$166,770.87
Coordination	\$45,000.00	\$46,125.00	\$47,278.13	\$48,460.08	\$49,671.58	\$50,913.37	\$52,186.20	\$53,490.86	\$393,125.22
Maintenance	\$30,000.00	\$30,750.00	\$31,518.75	\$32,306.72	\$33,114.39	\$33,942.25	\$34,790.80	\$35,660.57	\$262,083.48
Debt Service	\$90,000.00	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$90,000.00
TOTAL EXPENSES	\$1,729,525.00	\$1,470,852.50	\$1,349,198.81	\$1,412,153.78	\$1,512,257.63	\$1,516,989.07	\$1,594,363.79	\$1,609,647.89	\$12,194,988.48
Revenue									
Levy	\$1,205,100.00	\$1,241,253.00	\$1,278,490.59	\$1,316,845.31	\$1,356,350.67	\$1,397,041.19	\$1,438,952.42	\$1,482,121.00	\$10,716,154.17
Grants	\$358,000.00	\$183,000.00	\$8,000.00	\$8,000.00	\$8,000.00	\$8,000.00	\$8,000.00	\$8,000.00	\$589,000.00
Partners	\$34,500.00	\$43,500.00	\$43,500.00	\$33,500.00	\$33,500.00	\$33,500.00	\$33,500.00	\$33,500.00	\$289,000.00
Other	\$5,000.00	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$22,500.00
TOTAL REVENUE	\$1,602,600.00	\$1,470,253.00	\$1,332,490.59	\$1,360,845.31	\$1,400,350.67	\$1,441,041.19	\$1,482,952.42	\$1,526,121.00	\$11,616,654.17
Difference between Expenses and Revenue ***									
Difference (Rev-Exp)***	(\$126,925.00)	(\$599.50)	(\$16,708.22)	(\$51,308.48)	(\$111,906.96)	(\$75,947.88)	(\$111,411.37)	(\$83,526.89)	(\$578,334.31)

* Assumptions: Inflation of expenses at 2.5%. Levy increase (new growth plus inflation) at 3%. Low end of cost ranges in Table 5-5 were used for CIP expense estimates.

** Expenses include staffing as well as construction and/or treatment costs

*** Scott WMO is not planning deficit spending. If the SWMO is not successful with grants, some of the CIPs will be delayed or deleted in order to balance the annual budget.

**** Does not include Watershed Based Funding; SWMO is likely to receive \$230,000 from 2018-2021 for a pilot program. Future beyond that, however, is uncertain.

SECTION 5 – IMPLEMENTATION

GUIDING PRINCIPLES

Throughout this Plan the SWMO has been clear that it's does not have the capacity or resources to achieve desired outcomes on its own, and developed a number of Guiding Principles for developing this Plan. These principals are presented in Section 3. Table 5.7 provides a summary of the principals and related Plan elements.

Table 5.7. Guiding Principles and Related Plan Elements

Guiding Principal	Related Plan Elements
1) Achieving desired water resource outcomes is a shared responsibility between state and local government and the public	<ul style="list-style-type: none">• Stated throughout the Plan• Aggressive pursuit of state and federal grants• Establishes expectation of sharing the costs for implementing where other parties also benefit
2) Available resources will be focused on achieving priorities with realistic expectations	<ul style="list-style-type: none">• Priorities are clearly defined in Section 3• Provides both long-term and interim goals• Priorities are considered in crafting the various strategies
3) Using, building on, and/or enabling existing management programs before initiating new or duplicative programs	<ul style="list-style-type: none">• Standards are simplified to be consistent with the state NPDES General Construction Permit for runoff volume and erosion control• Leaves permitting to LGUs with land use authority and existing permitting programs
4) Building, sustaining, and utilizing partnerships are the preferred means of achieving goals and priorities	<ul style="list-style-type: none">• Embraces collaborative decision making through the Watershed Planning Commission, the Technical Advisory Committee, and the Cost Share Steering Committee• Establishes expectation of sharing the costs for implementing where other parties also benefit• Defines when the SWMO will lead• Lays out what the SWMO will consider when partnering for Capital Improvements and Maintenance responsibilities• Names specific partners (Scott, Le Sueur, Rice SWCDs, Cedar Lake Improvement District, O'Dowd Chain of Lakes Association, Three Rivers Park District and LGUs)• Establishes a goal of Collective Action• Provides cost share to cover increased risk for new or emerging practices

SECTION 5 – IMPLEMENTATION

Table 5.7. Guiding Principles and Related Plan Elements

Guiding Principal	Related Plan Elements
5) Building capacity of individuals, communities, and organizations to implement conservation to achieve results in a long term and sustainable manner	<ul style="list-style-type: none"> • Emphasizes Collective Action • Prioritizes success stories • Holds up leaders • Provides financial assistance • Provides technical assistance • Provides training • Provides incentives for whole farm planning • Provides a tiered system of financial support rewarding more than just singular practices • Partners with Scott SWCD to provide equipment • Provides positive reinforcement
6) Emphasizing prevention by creating a buffered and resilient aquatic environment; utilizing tools and programs aimed at promoting soil health; reducing runoff volumes and peak flows; and keeping homes, businesses and infrastructure out of harm's way (i.e., areas at risk of flooding and landslides)	<ul style="list-style-type: none"> • Continues Standards for protecting homes and businesses from flooding and land slides • Promotes practices to protect groundwater in DWSMAs • Shifts the TACS program to have greater emphasis on practices that build soil health and resiliency
7) Measuring, adapting and learning while implementing	<ul style="list-style-type: none"> • Monitors both bio-physical hydrologic systems, and social systems • Includes annual assessment of metrics reflecting: "How much is being done"; and "How well it is being done" • Updates the PPM annually • Includes frequent Program Reviews

SECTION 6 – ADMINISTRATION

Section 6

In October of 1996, the Board of Water & Soil Resources (BWSR) declared the Sand Creek, Shakopee Basin, and Southwest Scott Joint Powers Water Management Organizations (WMOs) “non-implementing” and terminated the WMOs. On October 30, 1996, BWSR notified the Scott County Board of Commissioners of its resulting responsibility for water management pursuant to Minn. Stat. 103B.231. (It should be noted that the Credit River WMO also eventually became a non-implementing organization, but later than the other three.) The statute requires the County to assume all water management responsibilities in all of the areas of the County that were previously under the terminated WMOs. Therefore, this Plan covers portions of five watersheds within Scott County: Sand Creek, Southwest, Shakopee Basin, Credit River, and that portion of Prior Lake-Spring Lake watershed that is not covered by the Prior Lake-Spring Lake Watershed District. The statute gives the County all of the authority and responsibility for management – planning, funding, regulation, and implementation – of a WMO.

AUTHORITY

As noted above, the County’s surface water management authority derives from Minn. Stat. 103B.231, subd.3(b). The County’s groundwater management authority derives from Minn. Stat. 103B.255.

ORGANIZATION

The Scott County Board of Commissioners is the governing body and serves in the capacity of the Scott Watershed Management Organization (SWMO) pursuant to County Board Resolution No. 2000-059, adopted July 11, 2000. Due to its creation under Minn. Stat. 103B.231, subd. 3, the SWMO has the characteristics and authority, set forth in Minn. Stat. 103B.211 and 103B.227, of any watershed management organization, including a joint powers watershed management organization even though it is comprised of only one entity. The Scott County Board of Commissioners conducts the business of the SWMO as the SWMO Board. The County also provides staff and administrative functions.

SECTION 6 – ADMINISTRATION

Citizen Advisory Committee

The Watershed Planning Commission (Commission) was established as a permanent citizen advisory committee and operates under the County’s standard procedures for advisory committees. The Commission works with staff to make recommendations to the SWMO Board on matters relating to the Water Plan. As the need arises or for special projects, the SWMO Board reserves the right to obtain additional input from stakeholders and citizens. Table 6.1 outlines the basic structure of the Watershed Planning Commission.

Table 6.1. Watershed Planning Commission Structure

Membership	7- member Commission; 1 representative from the Shakopee Basin/Prior Lake Spring Lake area, 1 from Credit River, 1 from Southwest, 2 from Sand Creek (because of its large area) and 2 at-large members. An exception may be considered when a seat is vacant for a year or more without receiving an application. When this occurs the County Board may consider an at-large appointment for the balance of the term of the vacant seat.
General Focus	Oversight on policy issues; recommend budget, plan, and program priorities; advisory support for the SWMO Board; utilize and implement the Comprehensive Water Resource Management Plan.
Tenure	Standard County advisory committee format (3-year term, 3-term limit); terms will be staggered to begin to ensure continuity of membership over the long term.
Meeting Schedule	Monthly, with special meetings as projects are initiated or Plan is amended.

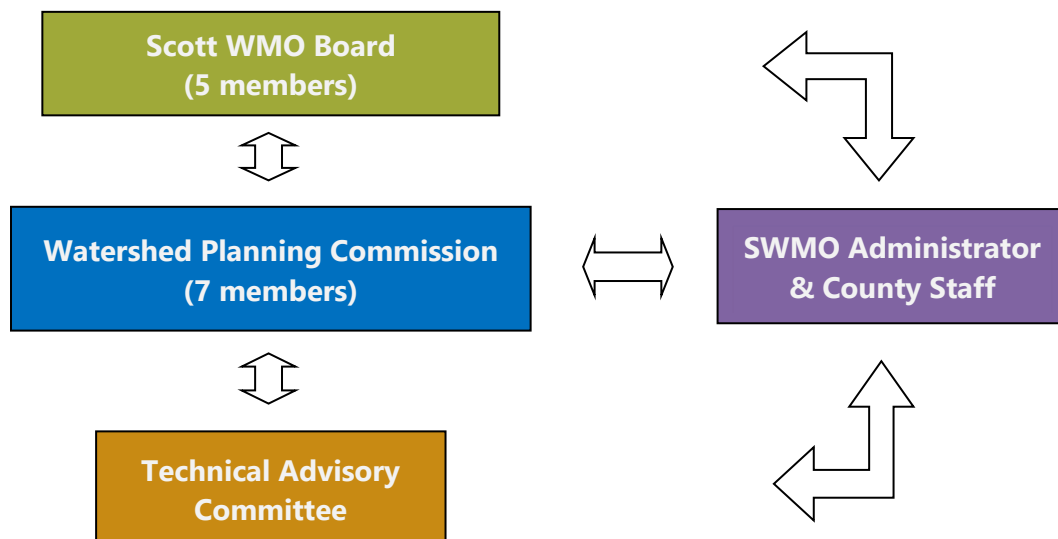


Figure 6.1. Scott WMO Structure

SECTION 6 – ADMINISTRATION

Technical Advisory Committee (TAC)

The Technical Advisory Committee provides a forum for community members to engage with the SWMO on watershed issues. The TAC consists of cities, state agencies, watershed jurisdictions, surrounding counties, Shakopee Mdewakanton Sioux Community, and other interested groups to provide informal technical consultation to the SWMO. The SWMO Board allows the LGUs to appoint a technical advisor to the TAC. It is the responsibility of each city to appoint a technical advisor and encourage the technical advisor to attend the SWMO TAC meetings. The technical advisors are welcome to ask questions and express opinions at TAC meetings. The TAC meetings occur on an as needed basis within the SWMO.

PLAN AMENDMENTS (MN RULE 8410.0140, SUBP.1)

This section establishes the process by which interim amendment to the Plan may be made and who may initiate amendments. The SWMO Watershed Management Plan is effective through the year 2026.

The SWMO Board recognizes that the Plan must periodically be amended and may initiate an amendment to remain a useful long-term planning tool. The SWMO is in the process of completing a number of studies and assessments at the time of this Plan development and recognizes that when complete, may necessitate amendments or revisions to implement the outcomes and recommendations of the studies. The SWMO will also be assessing the effectiveness of implementing this Plan using the measurable outcomes described in Section 6. These assessments may lead to changes to strategies and programs in the Plan and thus amendments. The SWMO is embracing an adaptive management approach within this Plan with regular program review and anticipates amendments about every two years as shown in the implementation schedules provided in Section 5.

Changes not requiring an amendment

These changes to plans must be distributed according to subpart 5 with a version showing deleted text as stricken and new text as underlined. Amendments to plans are not required for changes such as:

SECTION 6 – ADMINISTRATION

- formatting or reorganization of the plan;
- revision of a procedure meant to streamline administration of the plan;
- clarification of existing plan goals or policies;
- inclusion of additional data not requiring interpretation;
- expansion of public process; or
- adjustments to how an organization will carry out program activities within its discretion.

General Procedures

The SWMO may amend this Plan at any time if minor changes are required or if issues or opportunities arise that are not addressed in the Plan. All amendments to a plan must adhere to the review process provided in Minnesota Statutes, section 103B.231, subdivision 11, except when the proposed amendments are determined to be minor amendments according to the following provisions:

- 1) the BWSR has either agreed that the amendments are minor or failed to act within five working days of the end of the comment period specified in item B unless an extension is mutually agreed to with the organization;
- 2) the organization has sent copies of the amendments to the plan review authorities for review and comment allowing at least 30 days for receipt of comments, has identified the minor amendment procedure is being followed, and directed that comments be sent to the organization and the BWSR board;
- 3) no county board has filed an objection to the amendments with the organization and the board within the comment period specified in item B unless an extension is mutually agreed upon by the county and the organization;
- 4) the organization has held a public meeting to explain the amendments and published a legal notice of the meeting twice, at least seven days and 14 days before the date of the meeting; and
- 5) the amendments are not necessary to make the plan consistent with an approved and adopted county groundwater plan.

SECTION 6 – ADMINISTRATION

All amendments to the adopted plan shall be submitted to the towns, cities, county, the Metropolitan Council, and state review agencies, and the Board of Water & Soil Resources for review in accordance with the provisions of Minnesota Statute 103B.231, subdivisions 7 and 9.

Recommendations for general program changes may be initiated by individuals, special interest groups, LGUs, federal, state, and regional agencies, and the County. All recommendations must be submitted to the SWMO Administrator in writing along with a statement of the problem and need, a rationale for SWMO involvement, and a cost estimate. The SWMO Board will keep a record of all recommendations and will meet at least annually to review the recommendations and to hear testimony from interested parties. The SWMO Board shall notify the sponsor of each recommendation of the time and place of the meeting and shall publish or distribute meeting notices summarizing all proposed changes. Also, before any SWMO Board action on the recommendations, the LGUs shall be given a period of sixty (60) days if the action proposes changes in funding. When all of these requirements are met, the SWMO Board may, by resolution, amend the sections appropriately to best serve the interests of the SWMO.

Significant changes or changes that affect other jurisdictions within the SWMO shall be submitted to those jurisdictions for review and comments as required by Minn. Stat. 103B.231, subd. 11. Changes requiring LGU and agency review will indicate the impact on LWPs and will identify those local plans that will require revision upon approval of the change.

Other Agency Review Procedure (MN Statute 103B.231, Subd. 7 & 9)

The SWMO will submit the amendment for a sixty (60) day review and comment period to all counties, the Metropolitan Council, the state review agencies, the Board of Water & Soil Resources, Soil & Water Conservation Districts, cities, and townships. Following the prescribed review period or upon receipt of all comments, the SWMO shall publish a notice of public hearing on the proposed plan amendments in at least one legal newspaper in each of the five watersheds covered under the Plan. Publication shall occur at least ten (10) days before the hearing. The public hearing on the draft plan will occur no sooner than fourteen (14) days after the sixty (60) day review period. The SWMO must respond in writing to any concerns expressed by the review agencies at least ten (10) days before the public hearing. Notice shall also be

SECTION 6 – ADMINISTRATION

mailed at least thirty (30) days before the hearing to the Scott SWCD, the Metropolitan Council, DNR, MPCA, and BWSR. Any person may submit a request to BWSR not later than ten (10) days following the hearing, asking that the proposed amendments be fully reviewed in accordance with Minnesota state statutes. If BWSR determines that no full review is necessary, the SWMO shall adopt the proposed changes within sixty (60) days. If BWSR determines a full review is necessary under Minnesota state statutes, the SWMO shall delay any action on approval of the amendments until final receipt of the BWSR board review. Within 120 days of approval by the BWSR, the SWMO shall adopt the proposed changes. These changes shall be provided to all known holders of the Water Plan by addendum within sixty (60) days after adoption.

Minor Amendments

Changes to the Plan that do not represent significant changes in the SWMO's fundamental goals, policies, and implementation requirements may be incorporated into the Plan by resolution of the SWMO Board without outside input. Examples of minor amendments not representing significant changes include, but are not limited to:

- items such as recodification of the plan;
- revision of a procedure meant;
- to streamline administration of the plan;
- clarification of the intent of a policy;
- the inclusion of additional data not requiring interpretation; or
- any other action that will not adversely affect a local unit of government or diminish a water management organization's ability to achieve its plan's goals or implementation program.

The SWMO considers amendments to an approved plan's capital improvement program as minor plan amendments if:

- the original plan set forth the capital improvements, but not to the degree needed to meet the definition of "capital improvement program" as provided in Minn. Stat. 103B.205, subd.3; and

SECTION 6 – ADMINISTRATION

- the affected county or counties have approved the capital improvement in its revised, more detailed form.

Form and Distribution of Plan Amendments

Unless the entire document is reprinted, all amendments must be in the form of replacement pages as follows:

- For draft amendments, deleted text will be stricken and new text underlined.
- Pages will be renumbered as appropriate.
- The effective date of the amendment shall be on the replacement page.

Draft and final amendments may be sent electronically. A receiving entity may request to receive an amendment in paper format. SWMO will maintain a distribution list of agencies and individuals who have received a copy of the Plan and shall distribute copies of amendments within thirty (30) days of adoption and post the amendments on the organization's website within 30 days of adoption.

REGULATORY CONTROLS

The SWMO has prepared Standards that reflect the goals and policies of the SWMO as discussed in Section 3. These Standards are provided in Appendix C and form the basis for regulatory controls within the SWMO for implementing this Plan. Local Water Plans and official local controls will be reviewed to assure they are equivalent to these Standards as well as the goals and policies in Section 3. The SWMO anticipates amending its Rules after the Plan is adopted to reflect changes made to the Standards as a result of the new plan. However, the SWMO believes that implementation of the Standards is best achieved through the Local Water Plans (LWPs) and official controls of the LGUs. The SWMO intends to operate a permitting program and implement Standards through the Rules of the SWMO only if one of the conditions listed under Minn. Stat. 103B.211, subd. 1(a)(3) transferring authority of a watershed district to regulate land use occurs. In addition, it is the SWMO's position to attempt to correct or address these conditions such that permitting authority remains with the LGU rather than the SWMO.

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LOCAL (CITY) WATER MANAGEMENT PLANS (LWPS)

The cities of Belle Plaine, Jordan, New Prague, Shakopee, Prior Lake, Savage and Elko New Market, and Scott County for the eleven townships, are required to develop a LWP providing a coordinated system of managing watersheds on a regional or subwatershed basis consistent with this Plan. In accordance with MN. Stat. 103B.235 and MN. Rules 8410.0160. Following approval of amendments or updated LWPs, LGUs will have an additional 120 days to revise official controls and another 60 days to begin implementation. SWMO and County staff are available to serve as a technical advisor to the cities in the preparation or amendment of their LWPs and the review of individual development proposals prior to investment of significant public or private funds.

Requirements for Local Water Management Plans

As part of the 2018-2026 Plan update, seven specific items are needed in LWPs beyond the Minn. Rules 8410 requirements:

- Reference to MS4 SWPPP requirements if the LGU is an MS4;
- Street sweeping priorities and LGU protocol;
- Summarize the local Wellhead Protection Plan(s) and official controls;
- Review of the Twin Cities Metropolitan Area Chloride TMDL and Mississippi Total Suspended Solids (TSS) TMDL; and incorporation of Best Management Practices necessary, and a schedule, to meet local allocations for the municipality;
- Identification of developing areas that drain into other jurisdictions within the SWMO, and any special infrastructure needs, planning and coordination, or standards necessary to prevent downstream damage;
- Review of other TMDLs and WRAPs drafted for water bodies in the municipality and identification of waste load allocations, and Best Management Practices to be implemented and a schedule; and
- Reference and schedule for completing local controls (i.e. ordinances).

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LGU's should also include a review of the LGU's transportation plan, and the County's Transportation Improvement Plan (TIP) as a means of identifying water quality and flooding retrofit opportunities.

LOCAL (CITY) WATER PLAN REVIEW

After consideration but before adoption by the governing body, each local unit shall submit its LWP to the SWMO for review for consistency with the adopted Water Plan. The SWMO shall approve or disapprove the local plan or parts of the plan. The SWMO shall have 60 days to complete its review and shall, as part of its review, take into account the comments submitted to it by the Metropolitan Council. If the SWMO fails to complete its review within the prescribed period, the LWP shall be deemed approved unless the local unit agrees to an extension.

MCES Review

Concurrently with its submission of its local water management plan to the SWMO as provided in Minn. Stat. 103.235, subd. 3a, each LGU shall submit its water management plan to the Metropolitan Council (Council) for review and comment by the Council. The Council shall have 45 days to review and comment upon the local plan or parts of the plan with respect to consistency with the Council's comprehensive development guide for the metropolitan area. The Council's 45-day review period shall run concurrently with the 60-day review period by the SWMO. The Metropolitan Council shall submit its comments to the SWMO and shall send a copy of its comments to the LGU. If the Metropolitan Council fails to do this within the 45-day period, the SWMO shall complete its review as provided in Minn. Stat. 103.235, subd. 3.

Local Water Plan Equivalency

Equivalency of LWPs and associated ordinances will be determined according to the process in Minn. Stat. 103B and the SWMO Comprehensive Water Resource Management Plan (as amended). To determine equivalency the SWMO will evaluate how the LGU's LWP, rule and ordinances:

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- 1) Follow the policies and achieve the standards and goals of the SWMO as articulated in the SWMO Comprehensive Water Resource Management Plan (as amended), and the criteria of the SWMO Standards;
- 2) Provide for the maintenance and long term protection and operation of facilities and improvements constructed and/or permitted by the LGUs including:
 - a) Specification of an inspection frequency (the frequency specified in approved Storm Water Pollution Prevention Plans for MS4 communities is acceptable, or where the community is not an MS4 inspections should be completed at least once every ten years.)
 - b) Easements or dedicated outlots, shall be established for ponding, flowage, and drainage purposes over hydrologic features such as waterbodies and stormwater basins or other new stormwater facilities created for public benefit as part of this plan, or LWPs. These easements should include access easements for newly created facilities;
- 3) Provide the ability for the LGUs to enforce, monitor and inspect facilities, and improvements;
- 4) Incorporate public involvement and comment in the development of their LWP, rules and ordinances; and
- 5) Coordinate the LWP with other comprehensive Land Use Planning and official controls for managing growth within the LGU.

LGUs may adopt more restrictive standards. In addition, the SWMO recognizes that LGUs have different authorities and different ways of implementing programs that will necessitate language and varying approaches than presented in the following Standards.

ADMINISTRATION AND ENFORCEMENT OF LWPS

LGUs are responsible for implementing and enforcing LWPs covering their jurisdictions. When LWPs are approved, the SWMO will complete a Memorandum of Understanding (MOU) with

SECTION 6 – ADMINISTRATION

each LGU detailing the roles and responsibilities for reporting, tracking, coordinating, and implementing LWP requirements. The SWMO will have oversight responsibility to ensure implementation of LWPs. Oversight will include:

- 1) Yearly program review meetings between SWMO staff and the LGU to document progress on the LWP, and coordinate on the items coming in the next year;
- 2) Annual reviews of 1 to 2 permitted projects for each LGU; and
- 3) LGU invitation to participate in the SWMO's Technical Advisory Committee.

If the LGUs are found to be non-implementing, the SWMO will work with the LGU to correct, and will if problems persist, decide to develop permitting programs to take on Land Use Authorities granted by Minn. Stat. 103B and 103D to enforce standards in this Plan. However, the SWMO's preferred position is to avoid unnecessary duplication of permitting programs.

The SWMO encourages LGUs to review required Erosion Control, Resource Management and/or Stormwater Management plans under these Standards for new development and redevelopment as early as possible in the sketch plan/concept plan review process prior to the preliminary plat approval process or site plan approval process.

The SWMO desires to provide technical advice to the municipalities and the county in the preparation of local stormwater/resource management plans and the review of projects that may affect water resources prior to investment of significant public or private funds.

AGREEMENTS

The SWMO has entered into a number of water resources related agreements that govern in part, the administration of its programs, or how the SWMO manages its water resources. These agreements include Memorandums of Understanding between the SWMO and the Scott SWCD, an agreement with the Black Dog WMO having jurisdiction within its boundaries, and agreements with other governmental units. A copy of these agreements can be obtained upon request.

- 1) Memorandum of Understanding for Scott SWCD to administer several SWMO programs.

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- 2) Joint Powers Agreement with the Black Dog WMO relating to stormwater management between jurisdictions.
- 3) Joint Powers Agreement with the City of Shakopee for Swamp Lake wetland mitigation site.
- 4) Memorandum of Understanding agreements between the SWMO and the following municipalities regarding Local Water Plan implementation: Belle Plaine, Jordan, Prior Lake, Savage, Shakopee, New Prague, and Elko New Market.

FINANCIAL MECHANISMS

There are several authorities the SWMO can utilize to finance water plans, projects, and activities. These include a variety of taxes, assessments, charges, grants, and loans. Past functions of the SWMO under the 2004 Plan were funded by levy authority and grants. The SWMO's intent is to continue to use the District-wide Ad Valorem as the primary SWMO financial mechanism (103B.241 District-wide Ad Valorem). However, the SWMO will also aggressively pursue grants to leverage local resources, and may fund capital improvements with localized benefit through the establishment of additional special tax districts or special assessments as allowed by authorities of either the SWMO or the County (103B.245 Special Taxing District).

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MAPS

MAP 1: Scott County Subwatersheds

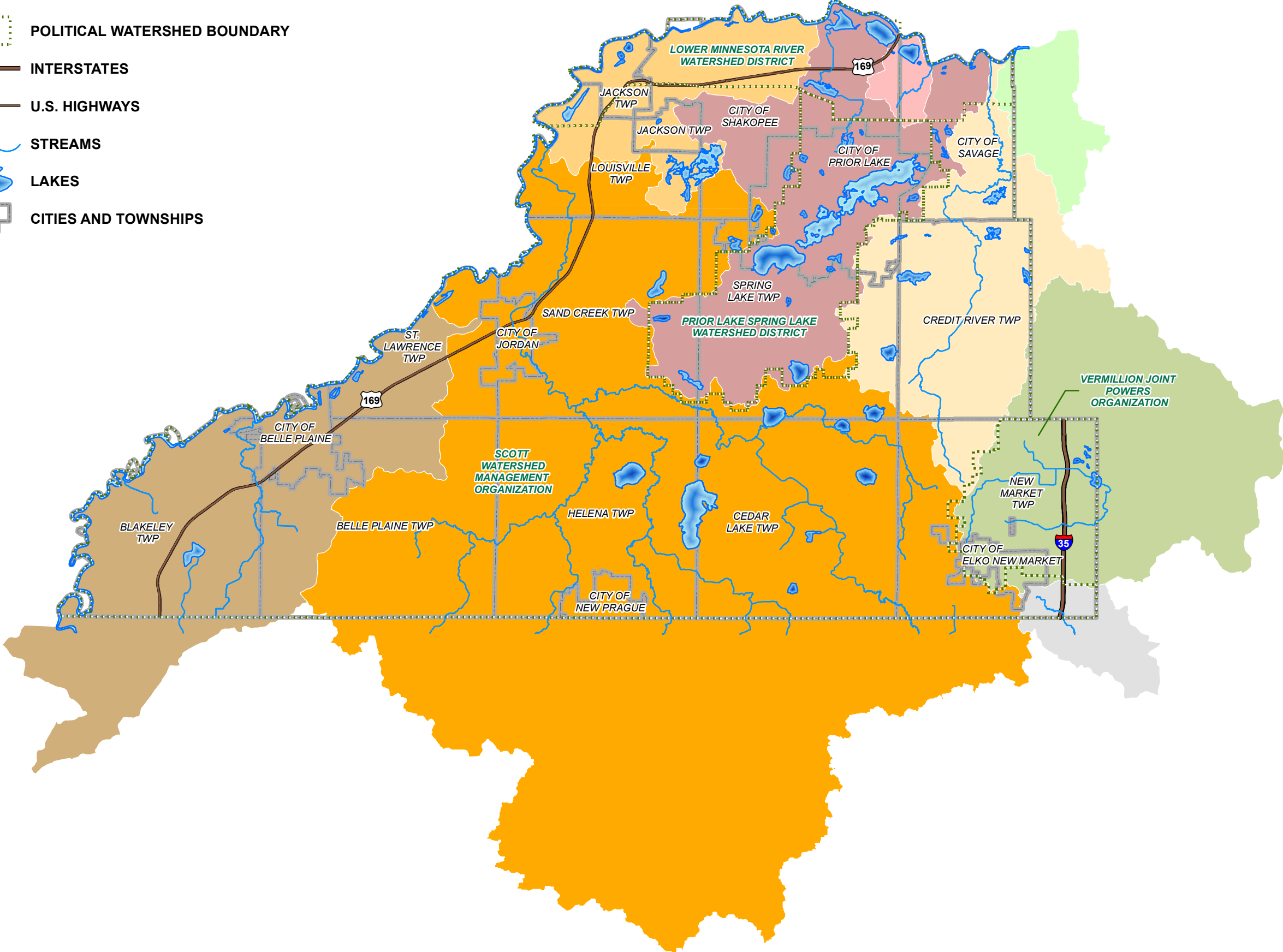
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WATERSHED BOUNDARIES

- BLACK DOG
- CREDIT RIVER
- EAGLE CREEK
- NORTH CANNON
- PRIOR LAKE-SPRING LAKE
- SAND CREEK
- SHAKOPEE BASIN
- SOUTHWEST
- VERMILLION

- POLITICAL WATERSHED BOUNDARY
- INTERSTATES
- U.S. HIGHWAYS
- STREAMS
- LAKES
- CITIES AND TOWNSHIPS

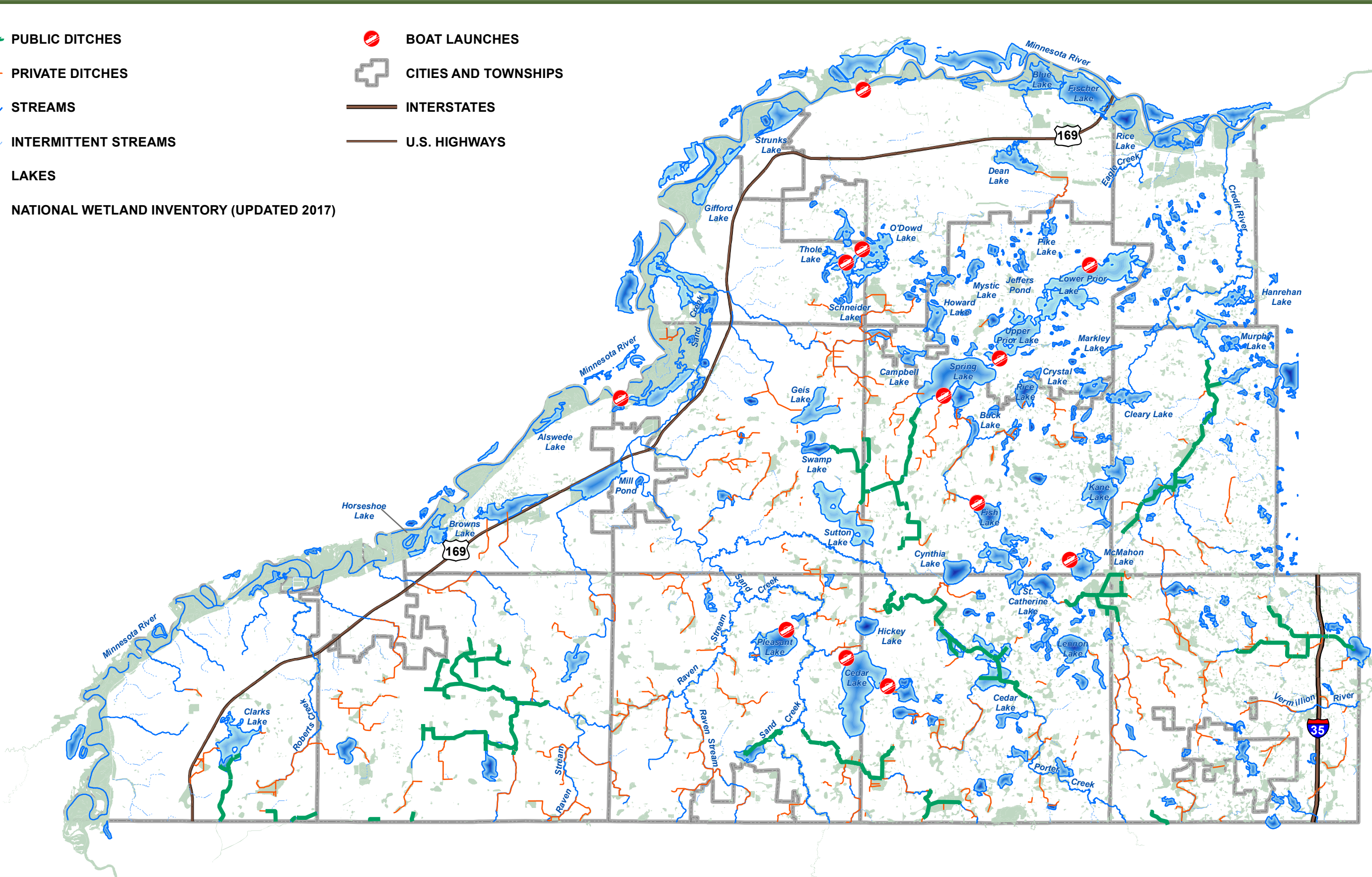


MAP 2: Scott County Surface Waters

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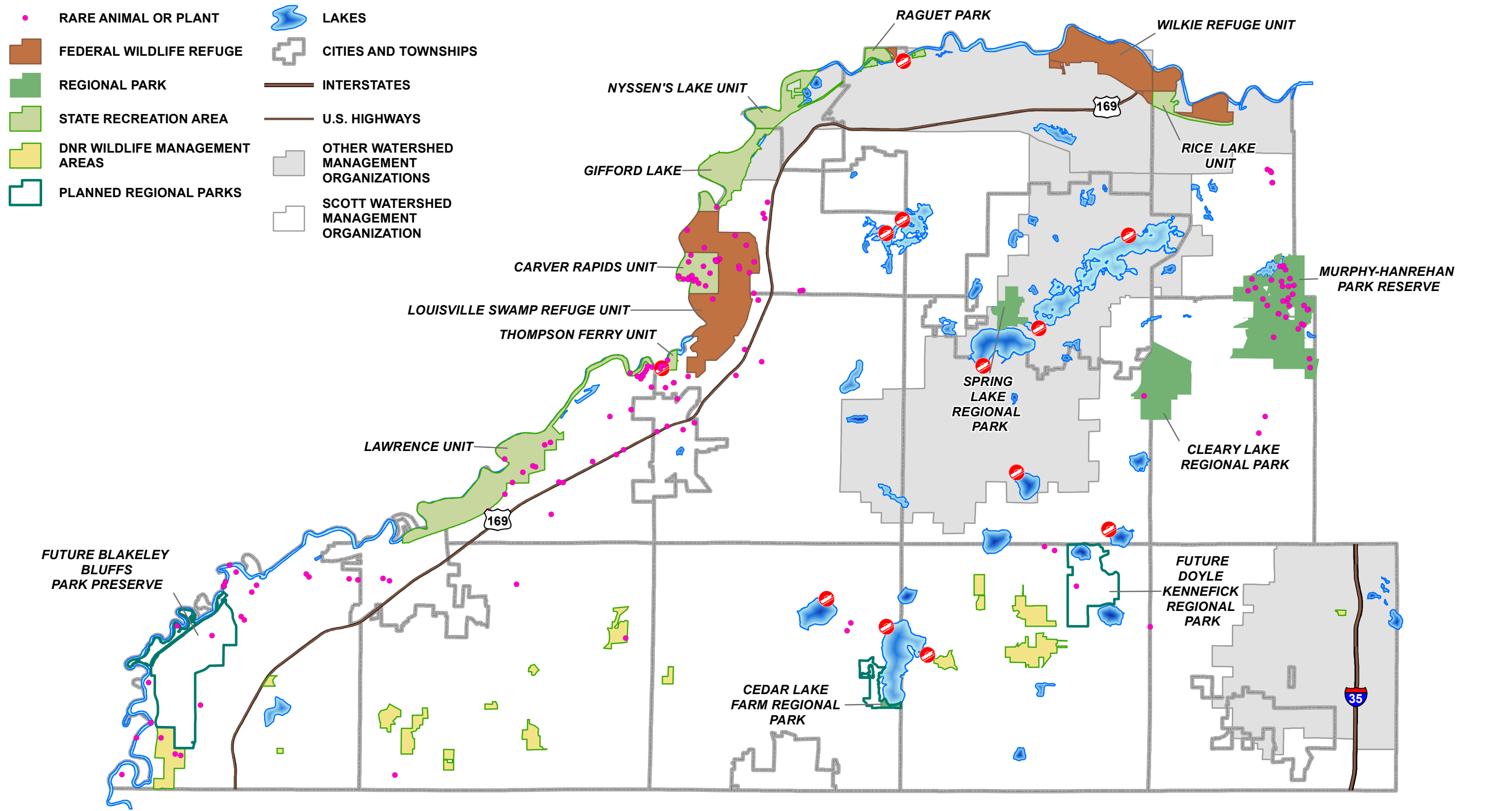


- PUBLIC DITCHES
- PRIVATE DITCHES
- STREAMS
- INTERMITTENT STREAMS
- LAKES
- NATIONAL WETLAND INVENTORY (UPDATED 2017)
- BOAT LAUNCHES
- CITIES AND TOWNSHIPS
- INTERSTATES
- U.S. HIGHWAYS



MAP 3: Critical Habitat & Scenic Areas

This map shows county-wide information, watershed boundaries are shown on Map1 only. This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information, and data located in various city, county, and state offices, and other sources affecting the area shown, and is to be used for reference purposes only. Scott County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact the Scott County's Surveyors Office.



MAP 4: 2016 Impaired Waters

This map shows county-wide information, watershed boundaries are shown on Map1 only. This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information, and data located in various city, county, and state offices, and other sources affecting the area shown, and is to be used for reference purposes only. Scott County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact the Scott County's Surveyors Office.



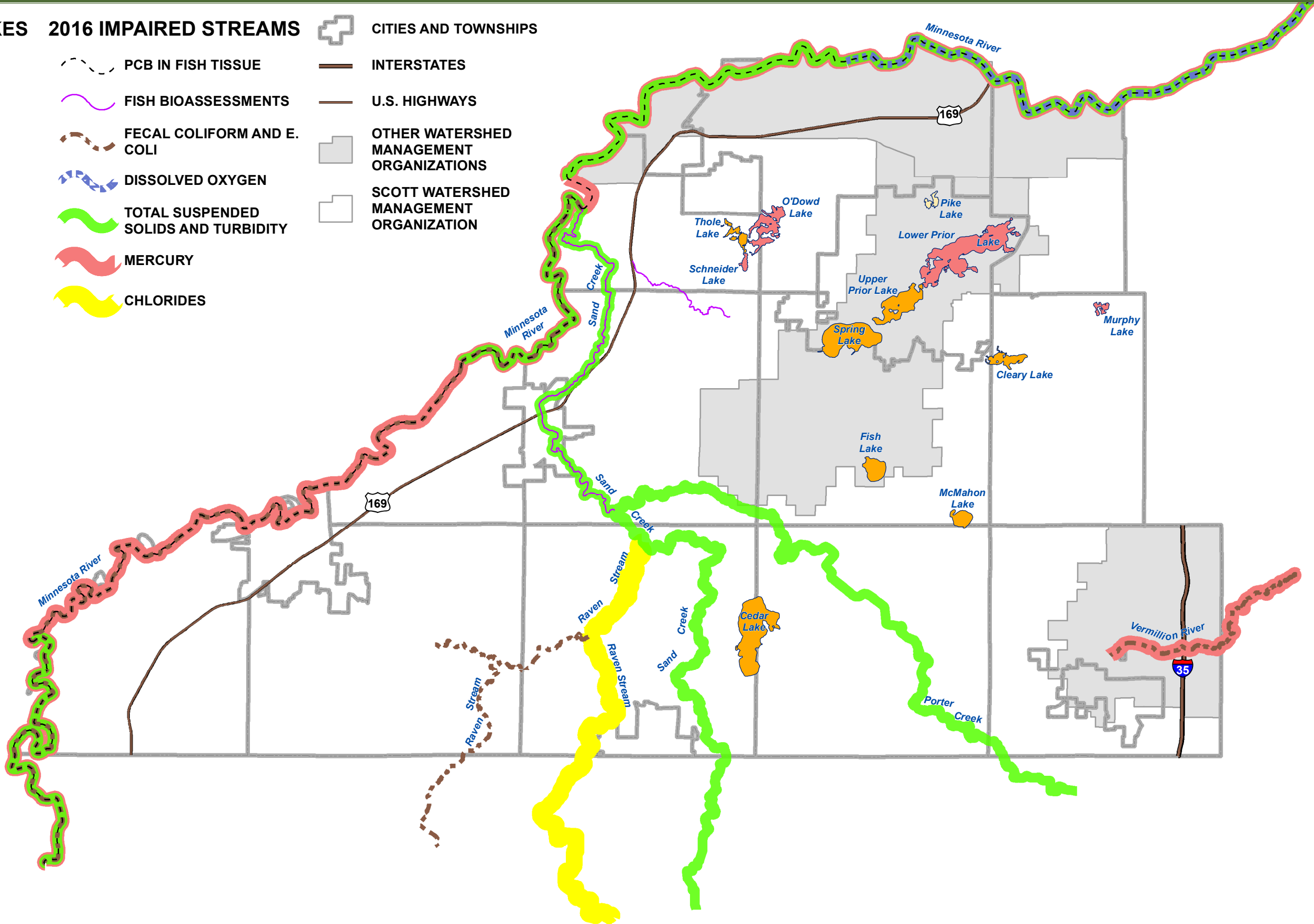
2016 IMPAIRED LAKES

- MERCURY
- NUTRIENTS AND MERCURY
- NUTRIENTS

2016 IMPAIRED STREAMS

- PCB IN FISH TISSUE
- FISH BIOASSESSMENTS
- FECAL COLIFORM AND E. COLI
- DISSOLVED OXYGEN
- TOTAL SUSPENDED SOLIDS AND TURBIDITY
- MERCURY
- CHLORIDES

- CITIES AND TOWNSHIPS
- INTERSTATES
- U.S. HIGHWAYS
- OTHER WATERSHED MANAGEMENT ORGANIZATIONS
- SCOTT WATERSHED MANAGEMENT ORGANIZATION



MAP 5: DRAFT 2018 Impaired Waters

This map shows county-wide information, watershed boundaries are shown on Map1 only. This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information, and data located in various city, county, and state offices, and other sources affecting the area shown, and is to be used for reference purposes only. Scott County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact the Scott County's Surveyors Office.



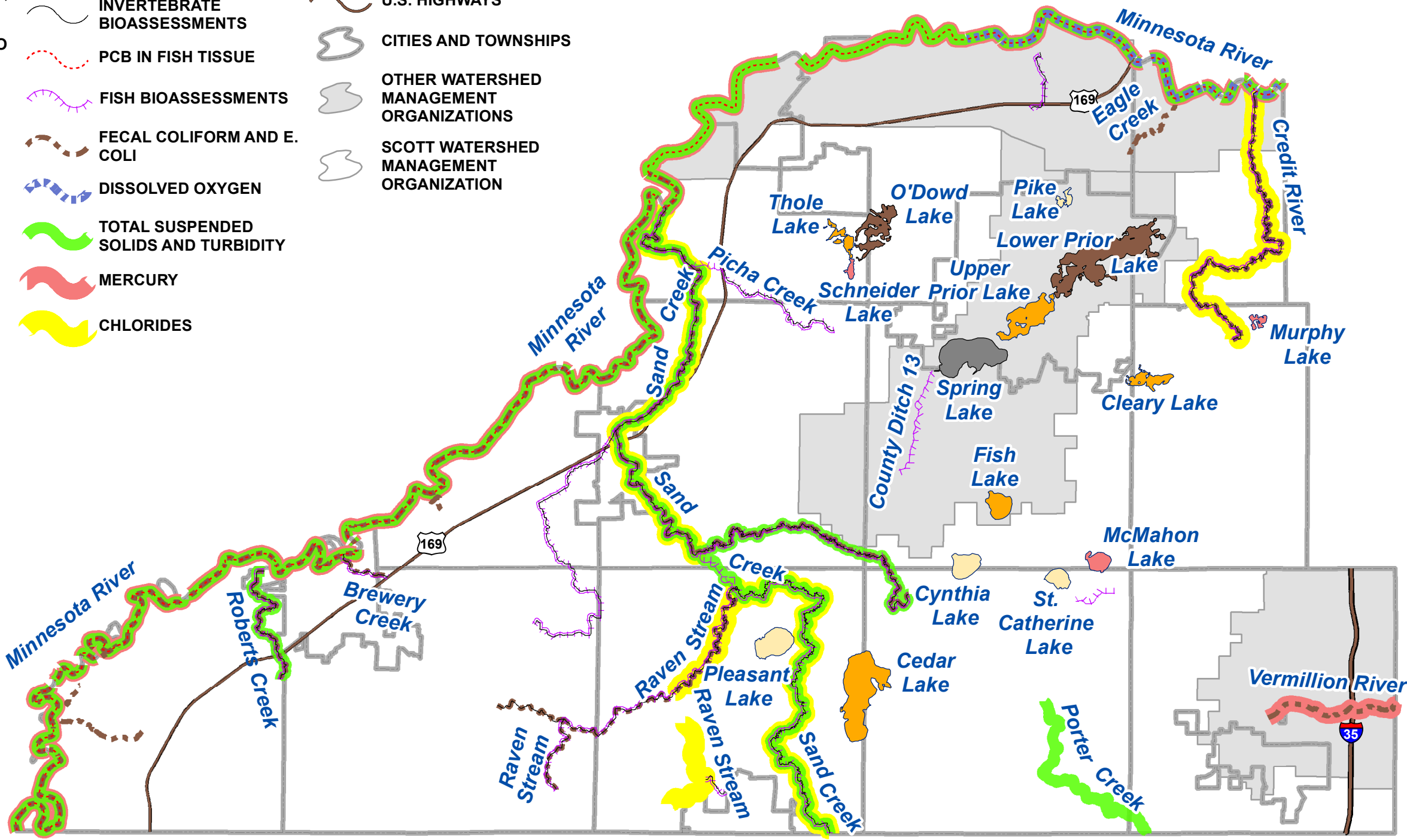
DRAFT 2018 IMPAIRED LAKES

- MERCURY, NUTRIENTS, FISH BIO
- MERCURY AND FISH BIO
- MERCURY
- NUTRIENTS AND MERCURY
- NUTRIENTS

DRAFT 2018 IMPAIRED STREAMS

- INVERTEBRATE BIOASSESSMENTS
- PCB IN FISH TISSUE
- FISH BIOASSESSMENTS
- FECAL COLIFORM AND E. COLI
- DISSOLVED OXYGEN
- TOTAL SUSPENDED SOLIDS AND TURBIDITY
- MERCURY
- CHLORIDES

- INTERSTATES
- U.S. HIGHWAYS
- CITIES AND TOWNSHIPS
- OTHER WATERSHED MANAGEMENT ORGANIZATIONS
- SCOTT WATERSHED MANAGEMENT ORGANIZATION



MAP 6: Scott County Feedlots

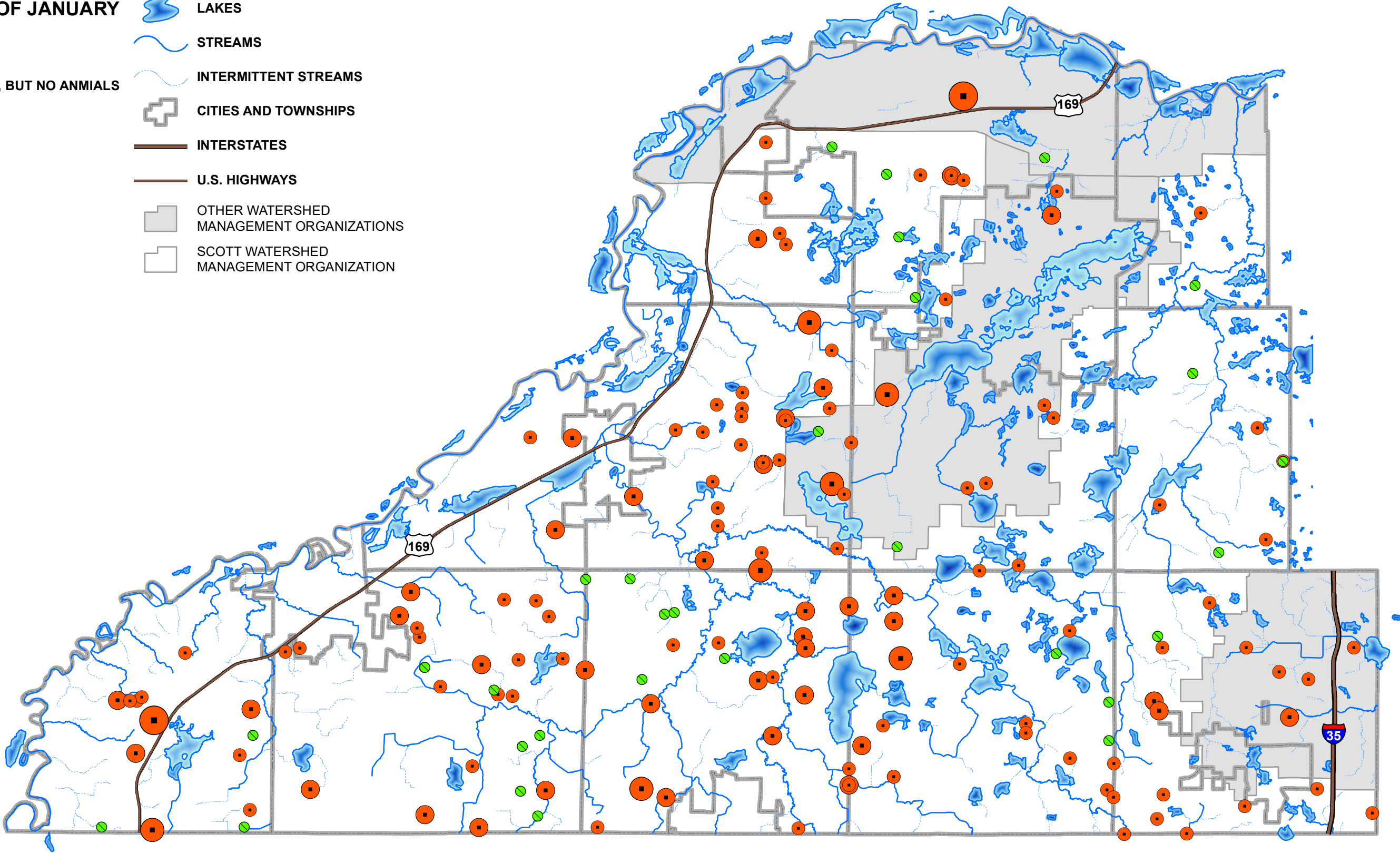
This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information, and data located in various city, county, and state offices, and other sources affecting the area shown, and is to be used for reference purposes only. Scott County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact the Scott County's Surveyors Office.



FEEDLOTS (AS OF JANUARY OF 2017)

- ANIMAL UNITS**
- REGISTERED, BUT NO ANIMALS IN 2017
 - 1 - 100
 - 101 - 350
 - 351 - 1000
 - 1001 - 1800

- LAKES
- STREAMS
- INTERMITTENT STREAMS
- CITIES AND TOWNSHIPS
- INTERSTATES
- U.S. HIGHWAYS
- OTHER WATERSHED MANAGEMENT ORGANIZATIONS
- SCOTT WATERSHED MANAGEMENT ORGANIZATION

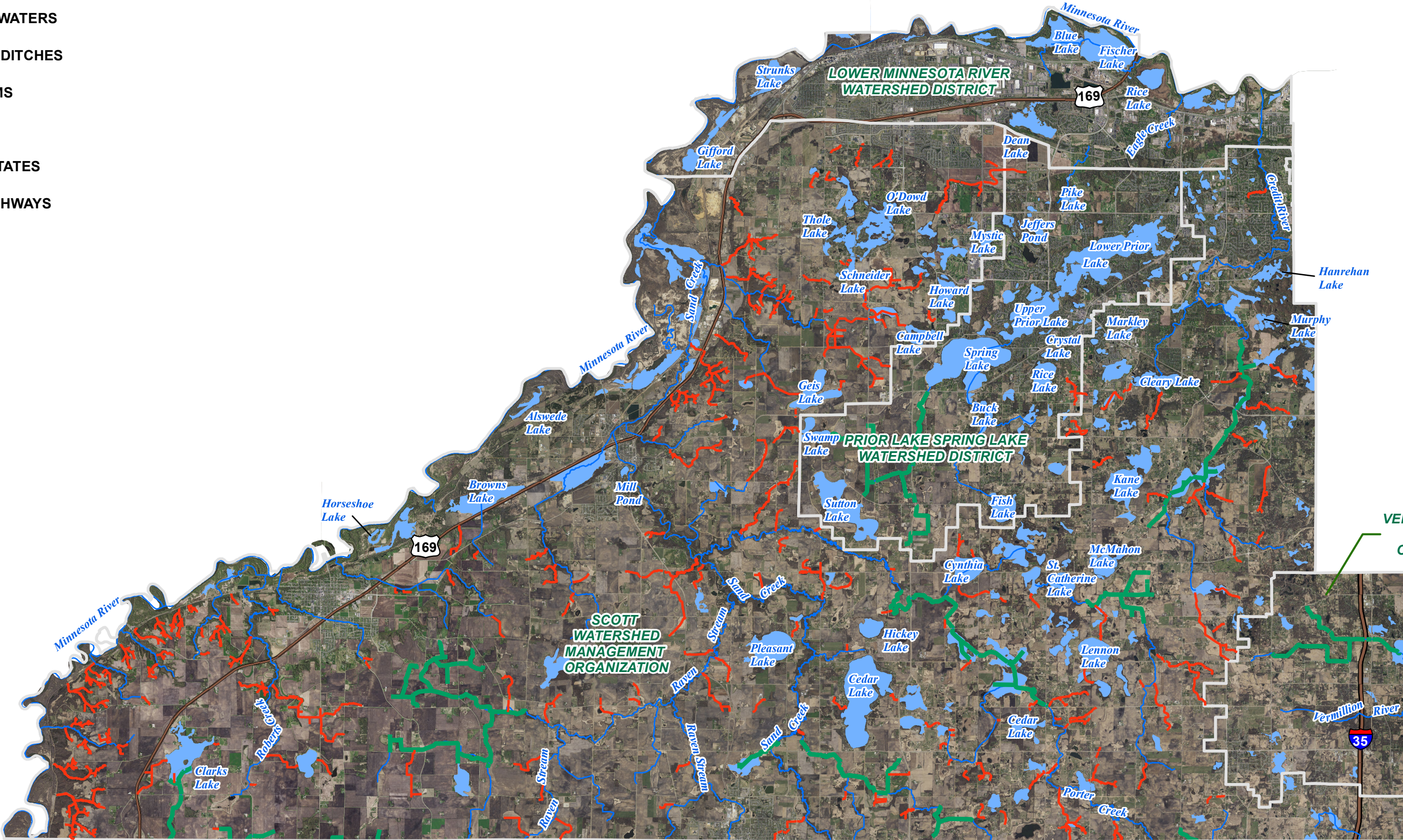


MAP 7: Scott County Other Waters

This map shows county-wide information, watershed boundaries are shown on Map1 only. This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information, and data located in various city, county, and state offices, and other sources affecting the area shown, and is to be used for reference purposes only. Scott County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact the Scott County's Surveyors Office.



- LOCAL WATER MANAGEMENT AUTHORITIES
- OTHER WATERS
- PUBLIC DITCHES
- STREAMS
- LAKES
- INTERSTATES
- U.S. HIGHWAYS



MAP 8: Drinking Water Supply Management Areas

This map shows county-wide information, watershed boundaries are shown on Map1 only. This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information, and data located in various city, county, and state offices, and other sources affecting the area shown, and is to be used for reference purposes only. Scott County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact the Scott County's Surveyors Office.

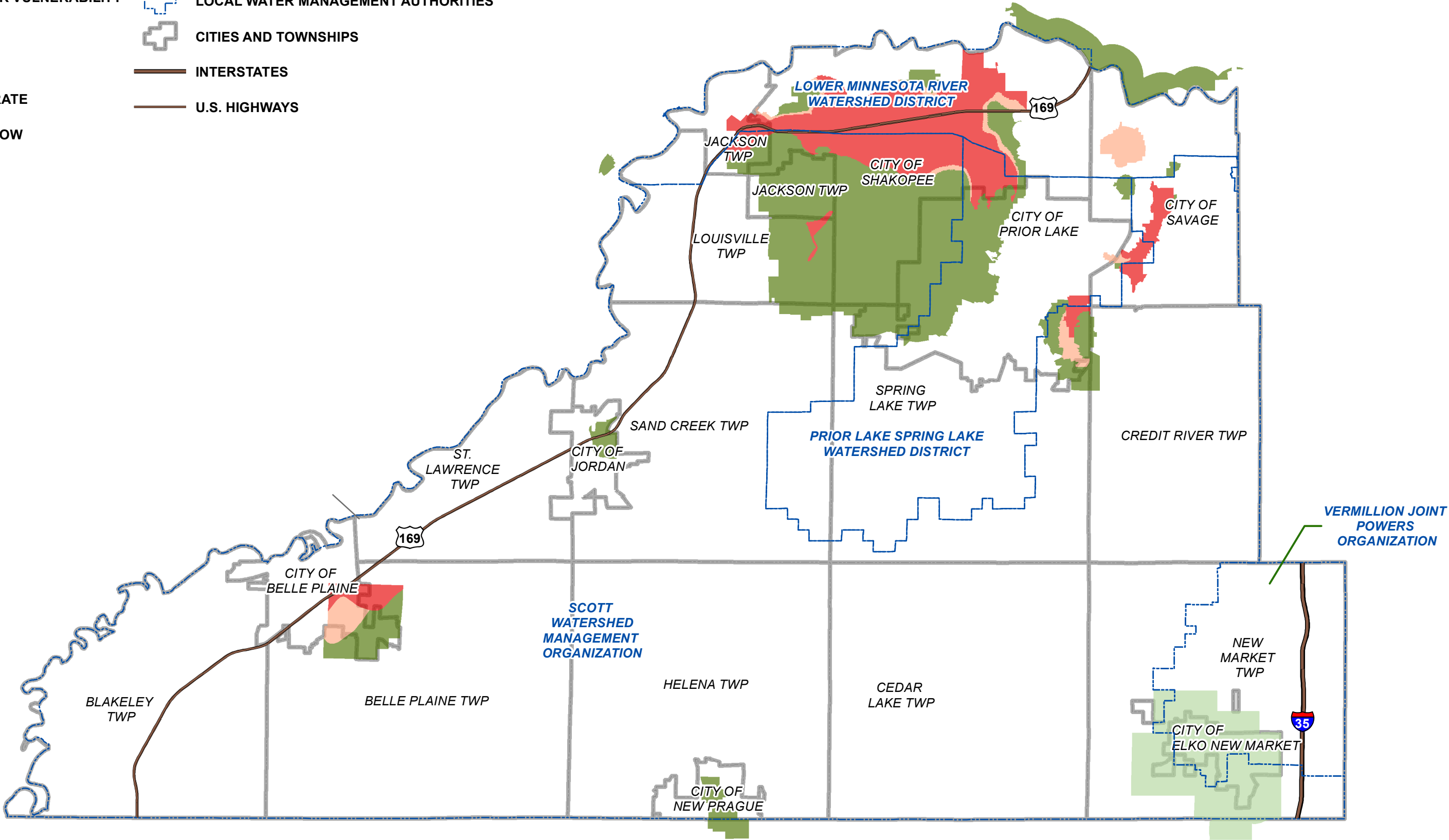


DRINKING WATER VULNERABILITY

- HIGH
- LOW
- MODERATE
- VERY LOW

LOCAL WATER MANAGEMENT AUTHORITIES

- CITIES AND TOWNSHIPS
- INTERSTATES
- U.S. HIGHWAYS



APPENDICES

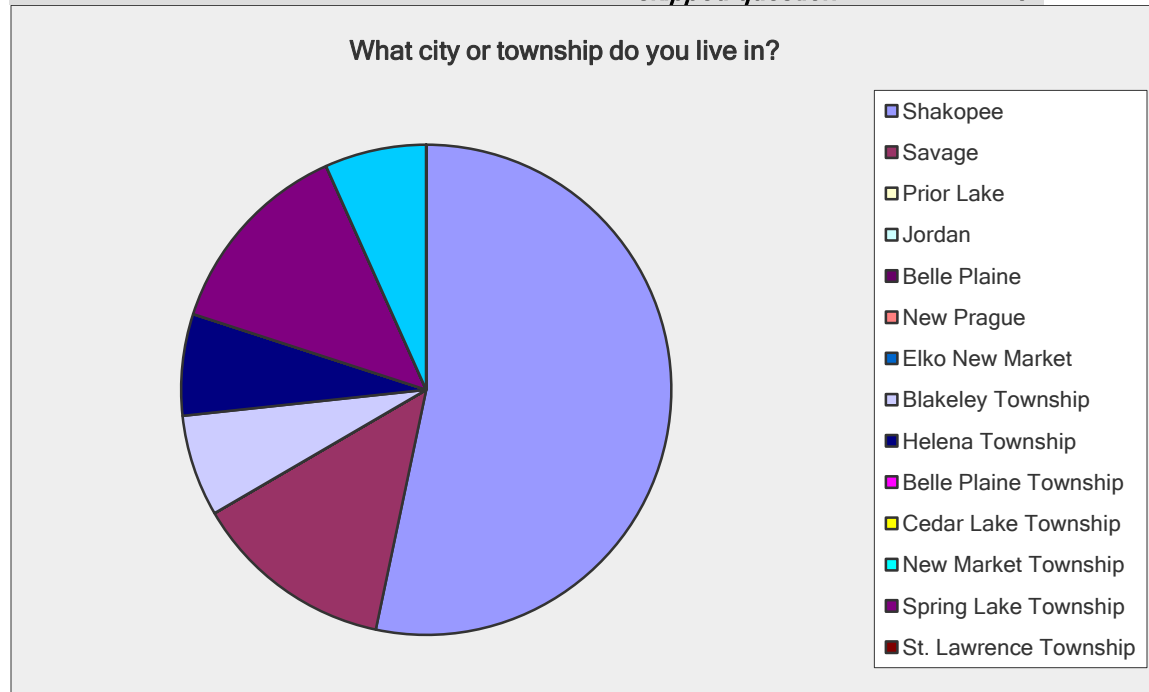
APPENDIX A

(Citizen Survey and Responses Summary)

2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

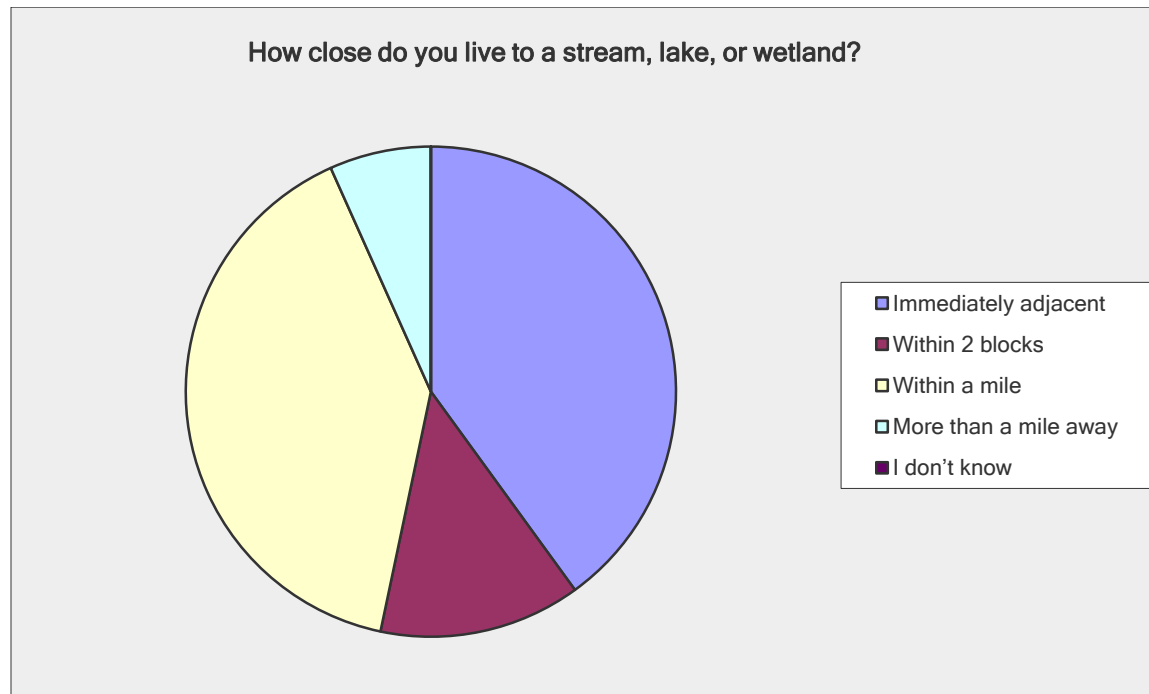
Scott County Water Resources: Community Conversations Survey

1. What city or township do you live in?		
Answer Options	Response Percent	Response Count
Shakopee	53.3%	8
Savage	13.3%	2
Prior Lake	0.0%	0
Jordan	0.0%	0
Belle Plaine	0.0%	0
New Prague	0.0%	0
Elko New Market	0.0%	0
Blakeley Township	6.7%	1
Helena Township	6.7%	1
Belle Plaine Township	0.0%	0
Cedar Lake Township	0.0%	0
New Market Township	0.0%	0
Spring Lake Township	13.3%	2
St. Lawrence Township	0.0%	0
Sand Creek Township	0.0%	0
Credit River Township	0.0%	0
Louisville Township	6.7%	1
Jackson Township	0.0%	0
Other (please specify)	0.0%	0
answered question		15
skipped question		0



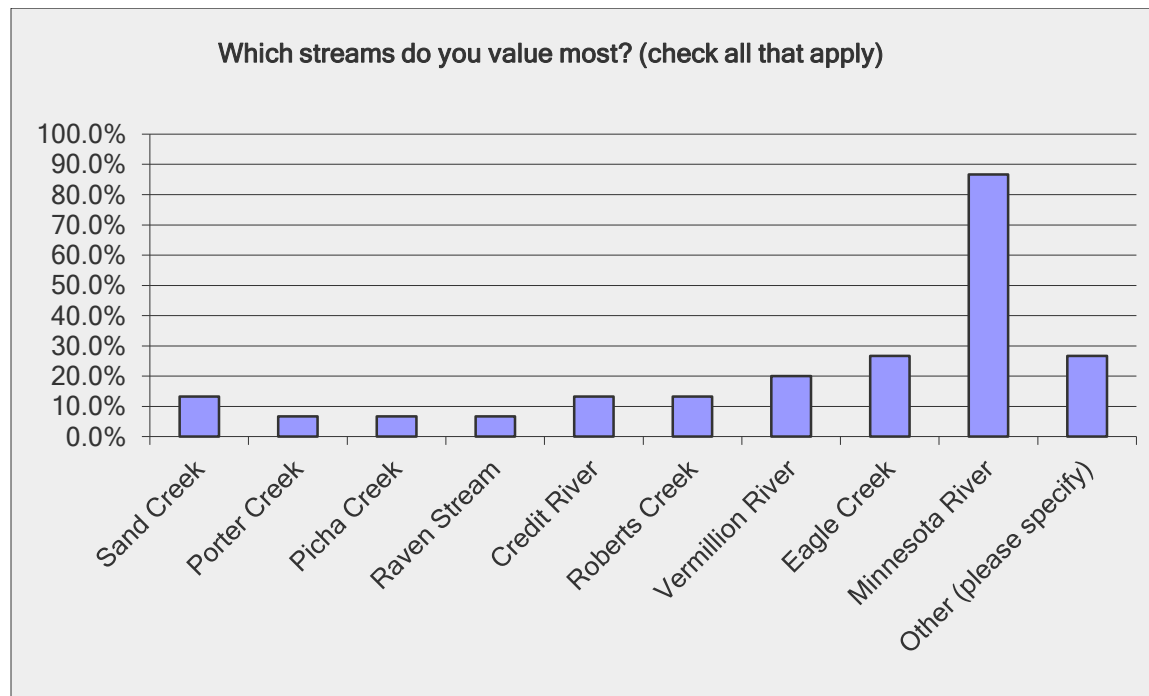
2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

2. How close do you live to a stream, lake, or wetland?		
Answer Options	Response Percent	Response Count
Immediately adjacent	40.0%	6
Within 2 blocks	13.3%	2
Within a mile	40.0%	6
More than a mile away	6.7%	1
I don't know	0.0%	0
<i>answered question</i>		15
<i>skipped question</i>		0



2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

3. Which streams do you value most? (check all that apply)		
Answer Options	Response Percent	Response Count
Sand Creek	13.3%	2
Porter Creek	6.7%	1
Picha Creek	6.7%	1
Raven Stream	6.7%	1
Credit River	13.3%	2
Roberts Creek	13.3%	2
Vermillion River	20.0%	3
Eagle Creek	26.7%	4
Minnesota River	86.7%	13
Other (please specify)	26.7%	4
<i>answered question</i>		15
<i>skipped question</i>		0

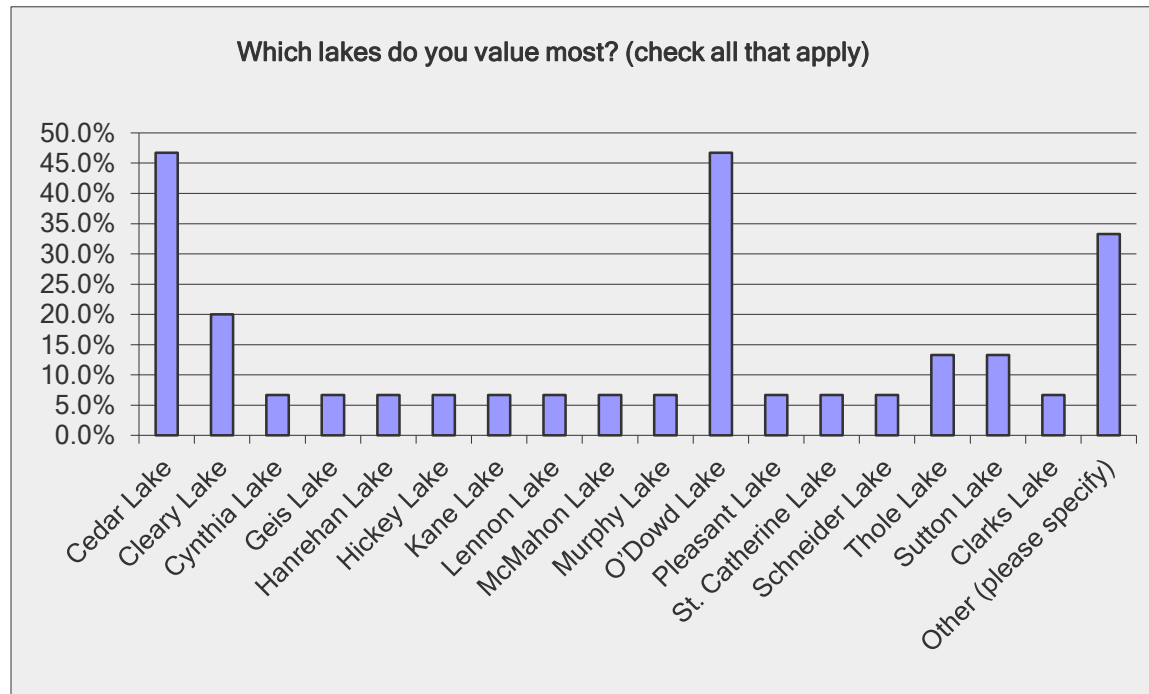


Additional comments:

- Runoff into pond behind our home;
- Spring Lake;
- All streams are important but the Minnesota River is most relevant to where I live;
- There aren't any streams near my residence that I know of

2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

4. Which lakes do you value most? (check all that apply)		
Answer Options	Response Percent	Response Count
Cedar Lake	46.7%	7
Cleary Lake	20.0%	3
Cynthia Lake	6.7%	1
Geis Lake	6.7%	1
Hanrehan Lake	6.7%	1
Hickey Lake	6.7%	1
Kane Lake	6.7%	1
Lennon Lake	6.7%	1
McMahon Lake	6.7%	1
Murphy Lake	6.7%	1
O'Dowd Lake	46.7%	7
Pleasant Lake	6.7%	1
St. Catherine Lake	6.7%	1
Schneider Lake	6.7%	1
Thole Lake	13.3%	2
Sutton Lake	13.3%	2
Clarks Lake	6.7%	1
Other (please specify)	33.3%	5
answered question		15
skipped question		0



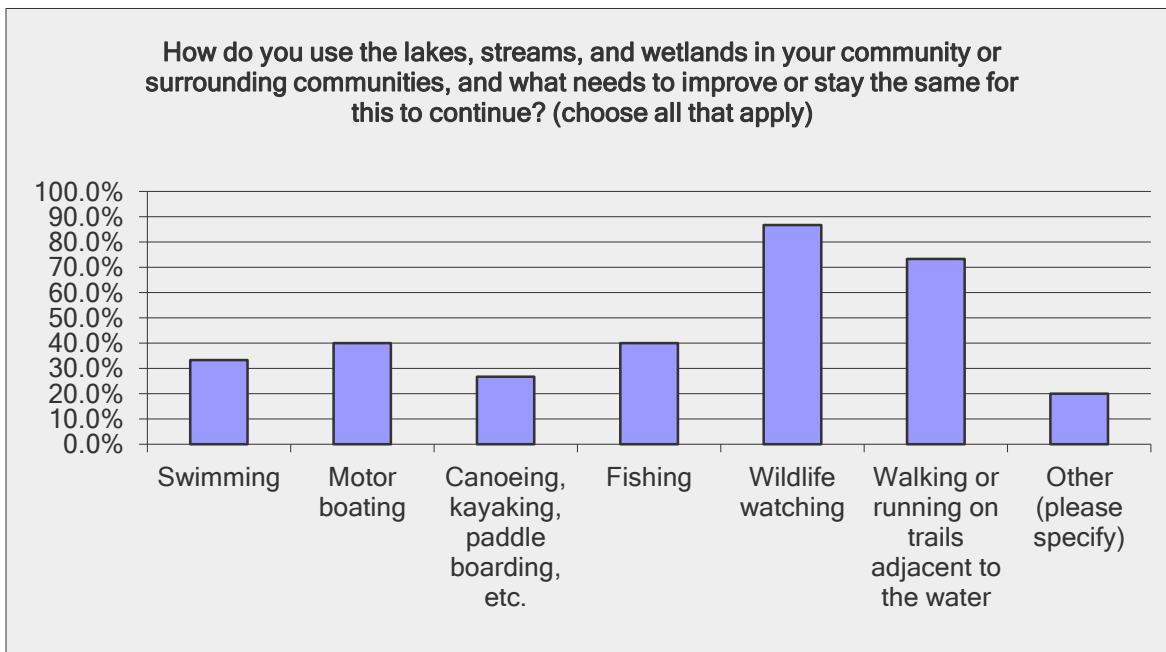
2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

Additional comments:

- Why isn't Spring & Prior Lake on here??????;
- New to the area, so don't know
- I don't know

5. How would you characterize the quality of water in Scott County?								
Answer Options	Very Good	Good	Fair	Poor	Very Poor	I Don't Know	Rating Average	Response Count
	1	3	5	2	1	3	2.92	15
<i>answered question</i>								15
<i>skipped question</i>								0

6. How do you use the lakes, streams, and wetlands in your community or surrounding communities, and what needs to improve or stay the same for this to continue? (choose all that apply)		
Answer Options	Response Percent	Response Count
Swimming	33.3%	5
Motor boating	40.0%	6
Canoeing, kayaking, paddle boarding, etc.	26.7%	4
Fishing	40.0%	6
Wildlife watching	86.7%	13
Walking or running on trails adjacent to the water	73.3%	11
Other (please specify)	20.0%	3
<i>answered question</i>		15
<i>skipped question</i>		0



2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

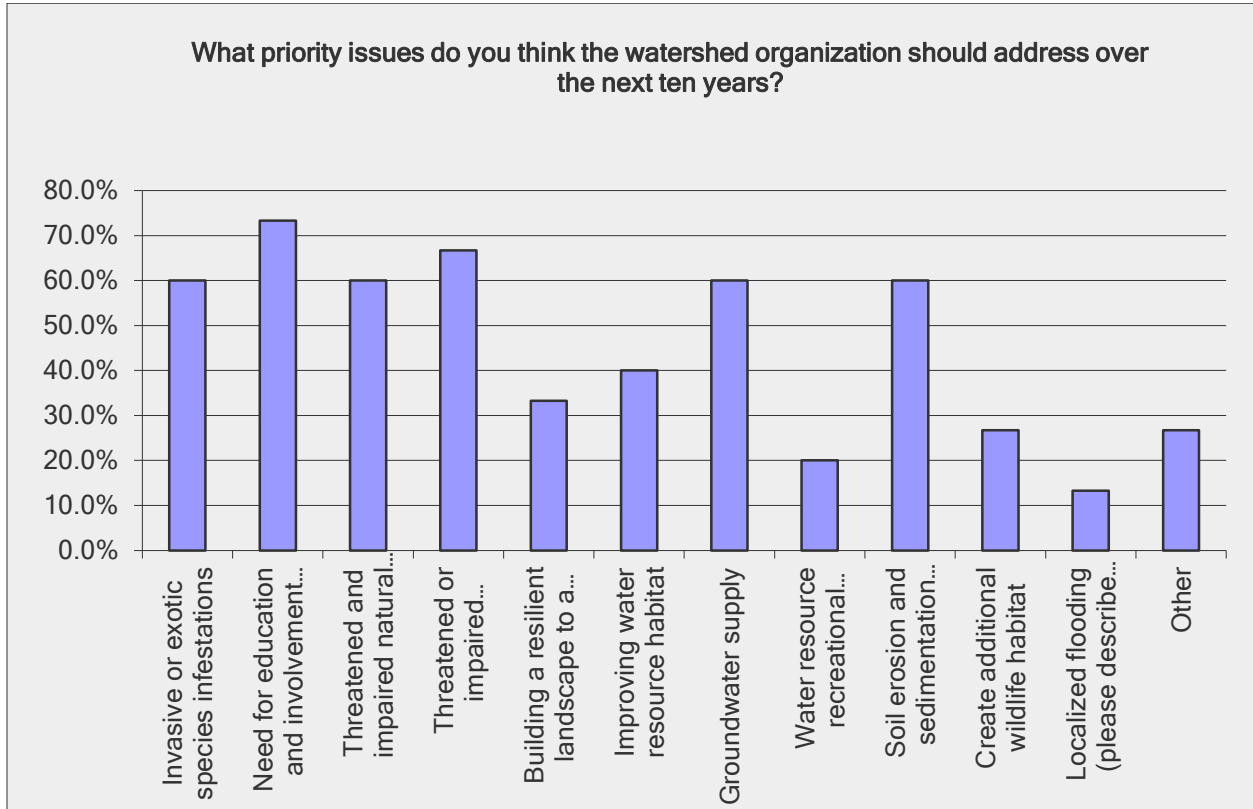
Additional comments:

Enjoying wildlife in and around the pond behind our home;

My wife and I live on lake Thole and are concerned about the spread of invasive weeds in the lake. Lake Thole and O'Dowd are precious resources for Scott County that in the future could see real growth and recreational use for a growing Shakopee

7. What priority issues do you think the watershed organization should address over the next ten years?		
Answer Options	Response Percent	Response Count
Invasive or exotic species infestations	60.0%	9
Need for education and involvement from citizens and stakeholders	73.3%	11
Threatened and impaired natural and surface water resources	60.0%	9
Threatened or impaired groundwater resources	66.7%	10
Building a resilient landscape to a changing climate	33.3%	5
Improving water resource habitat	40.0%	6
Groundwater supply	60.0%	9
Water resource recreational opportunities	20.0%	3
Soil erosion and sedimentation (both from rural and urban landscapes)	60.0%	9
Create additional wildlife habitat	26.7%	4
Localized flooding (please describe below)	13.3%	2
Other	26.7%	4
<i>answered question</i>		15
<i>skipped question</i>		0

2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

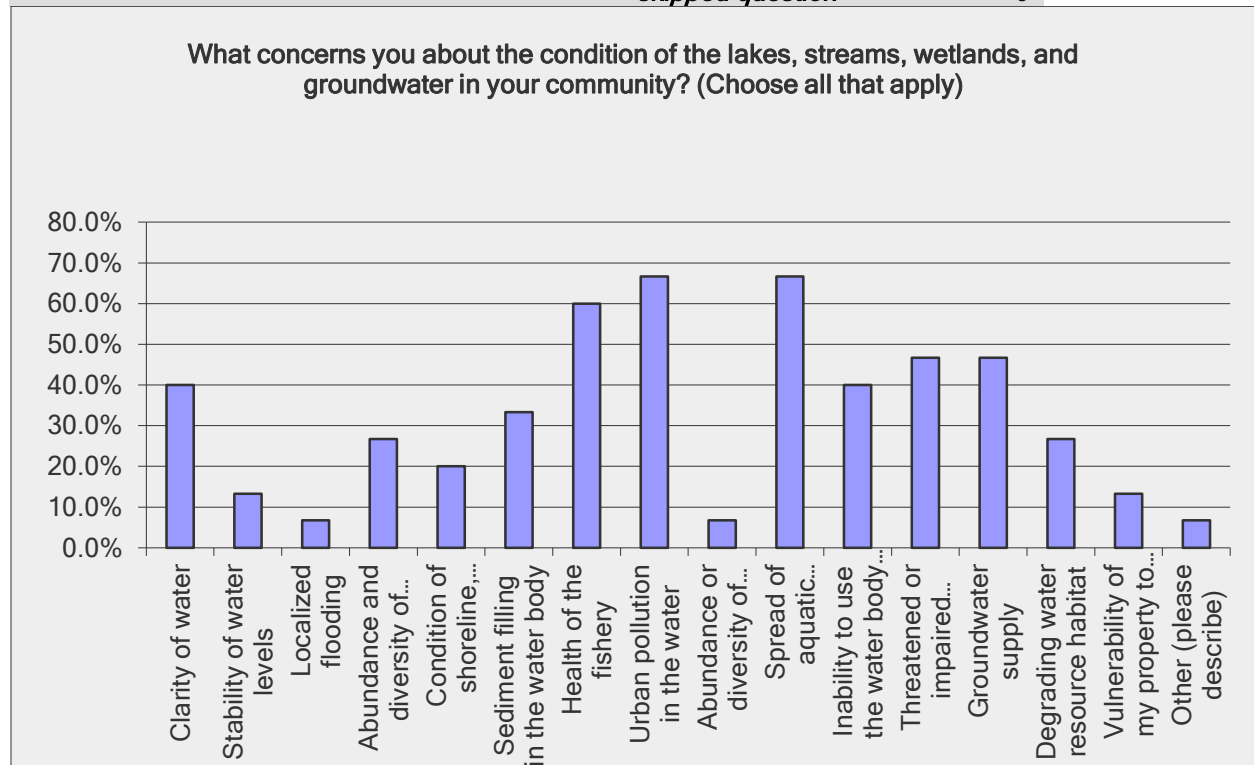


Additional comments:

- Control farmers from dumping/over using their fertilizers/pesticides in the soil therefore getting into water;
- Farm fields that are drain tiled should be required to have a holding pond to hold the drained water instead of the current system where all the water rushes through the tile into the streams and Minnesota River causing erosion, sedimentation and flooding;
- With education, the rest will become somewhat simpler. Some people don't even know what a watershed is;
- The PLSLWD has flooding around the lake, sometimes affecting homes and roads.

2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

8. What concerns you about the condition of the lakes, streams, wetlands, and groundwater in your community? (Choose all that apply)		
Answer Options	Response Percent	Response Count
Clarity of water	40.0%	6
Stability of water levels	13.3%	2
Localized flooding	6.7%	1
Abundance and diversity of wildlife	26.7%	4
Condition of shoreline, and/or shoreline erosion	20.0%	3
Sediment filling in the water body	33.3%	5
Health of the fishery	60.0%	9
Urban pollution in the water	66.7%	10
Abundance or diversity of aquatic plants	6.7%	1
Spread of aquatic invasive species	66.7%	10
Inability to use the water body for recreation	40.0%	6
Threatened or impaired groundwater resources	46.7%	7
Groundwater supply	46.7%	7
Degrading water resource habitat	26.7%	4
Vulnerability of my property to a changing climate	13.3%	2
Other (please describe)	6.7%	1
<i>answered question</i>		15
<i>skipped question</i>		0



Additional comments:

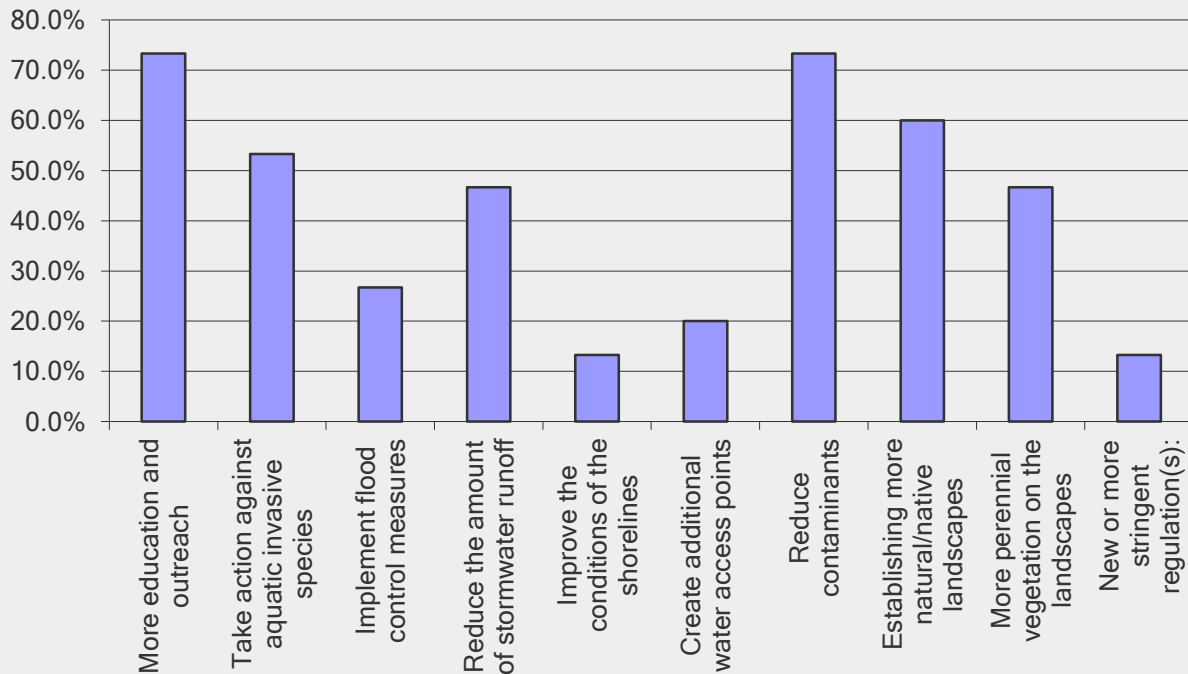
- Agricultural pollution in surface and groundwater

2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

9. What are some solutions you could see to improve water quality in your neighborhood or community?

Answer Options	Response Percent	Response Count
More education and outreach	73.3%	11
Take action against aquatic invasive species	53.3%	8
Implement flood control measures	26.7%	4
Reduce the amount of stormwater runoff	46.7%	7
Improve the conditions of the shorelines	13.3%	2
Create additional water access points	20.0%	3
Reduce contaminants	73.3%	11
Establishing more natural/native landscapes	60.0%	9
More perennial vegetation on the landscapes	46.7%	7
New or more stringent regulation(s):	13.3%	2
<i>answered question</i>		15
<i>skipped question</i>		0

What are some solutions you could see to improve water quality in your neighborhood or community?

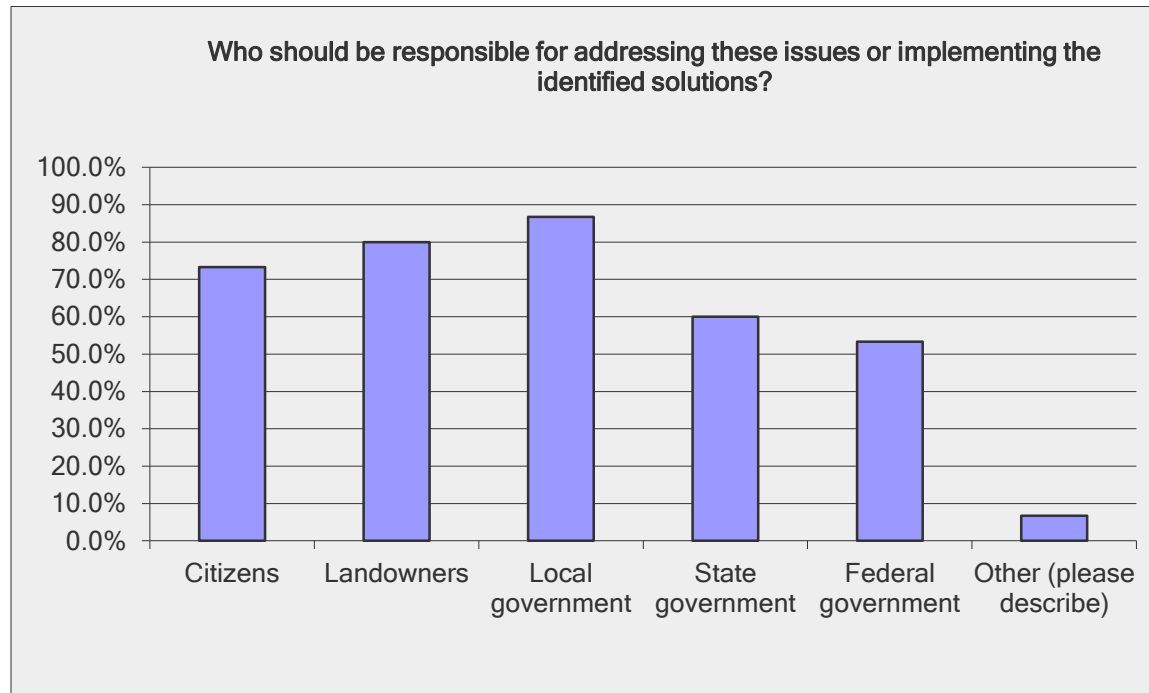


2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

Additional comments:

- Too much fertilizer runoff into ponds creating algae. Hopefully the city has stopped cutting down the natural vegetation around the runoff ponds;
- Agricultural irrigation and drainage from Golf Course and other areas of large nitrate pollution. The amount of weed growth in the lakes in the past few years is astonishing.

10. Who should be responsible for addressing these issues or implementing the identified solutions?		
Answer Options	Response Percent	Response Count
Citizens	73.3%	11
Landowners	80.0%	12
Local government	86.7%	13
State government	60.0%	9
Federal government	53.3%	8
Other (please describe)	6.7%	1
<i>answered question</i>		15
<i>skipped question</i>		0

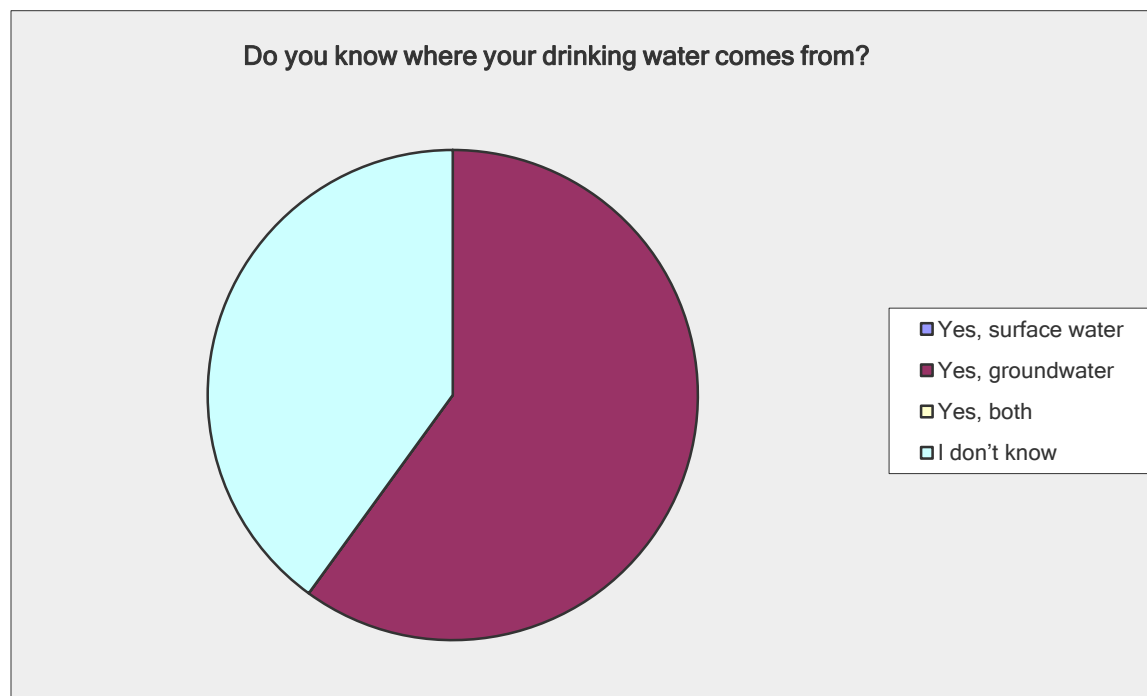


Additional comments:

- Are there lake associations? Maybe that would be a good start

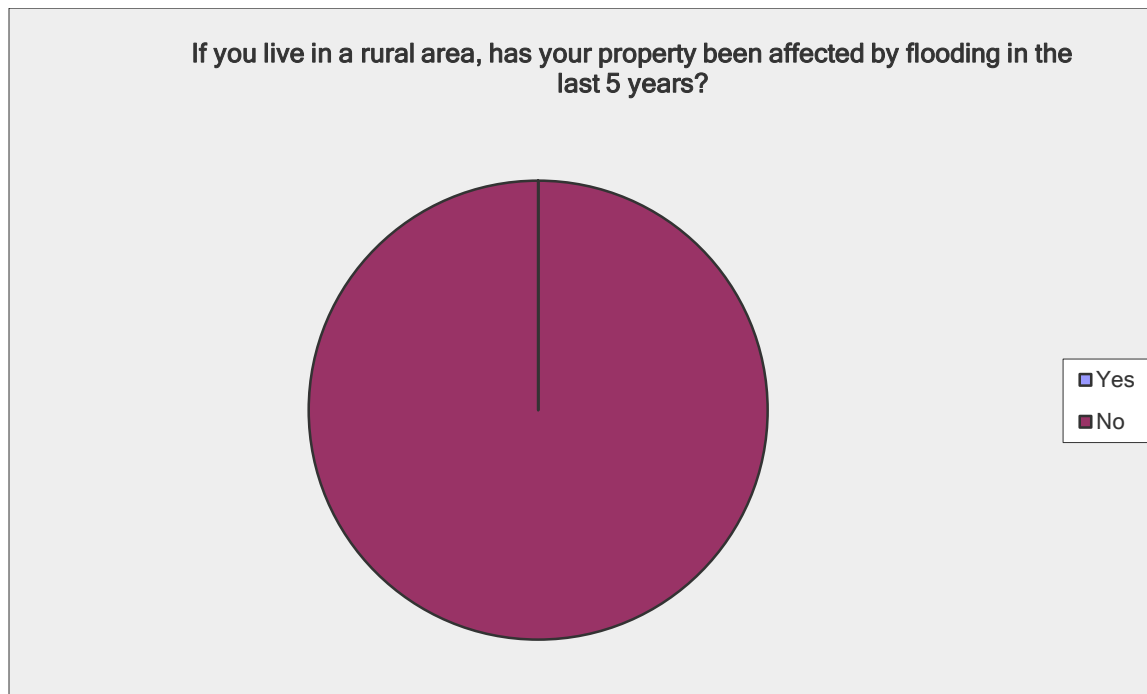
2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

11. Do you know where your drinking water comes from?		
Answer Options	Response Percent	Response Count
Yes, surface water	0.0%	0
Yes, groundwater	60.0%	9
Yes, both	0.0%	0
I don't know	40.0%	6
<i>answered question</i>		15
<i>skipped question</i>		0



2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

12. If you live in a rural area, has your property been affected by flooding in the last 5 years?		
Answer Options	Response Percent	Response Count
Yes	0.0%	0
No	100.0%	15
<i>answered question</i>		15
<i>skipped question</i>		0



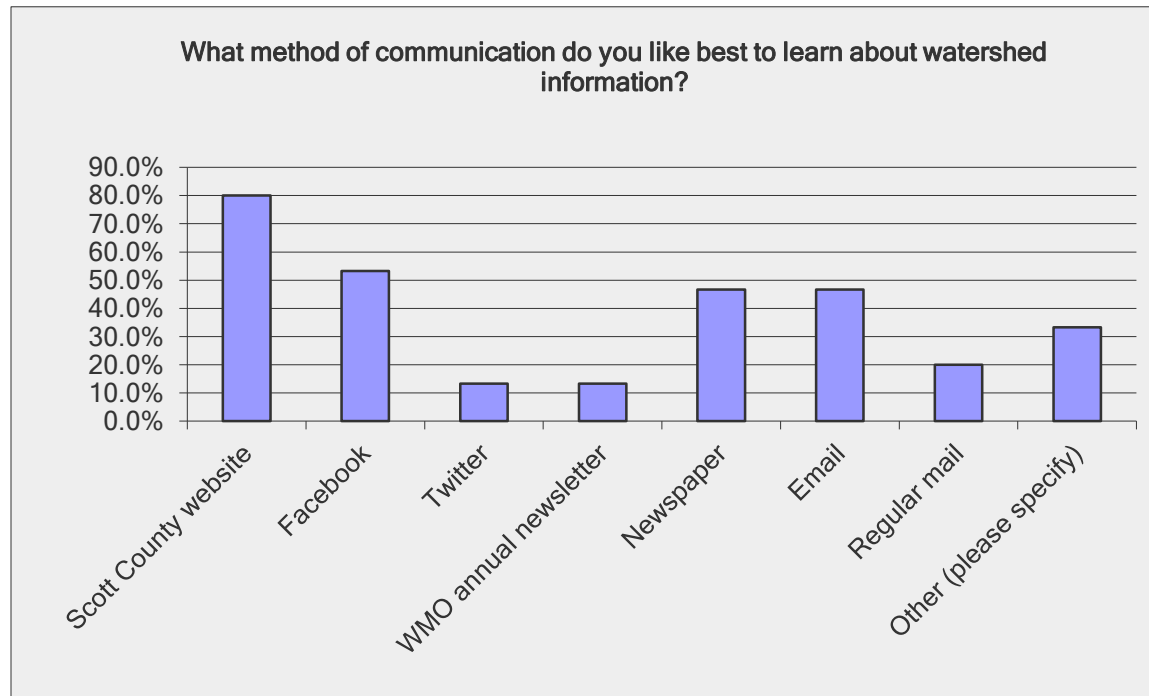
2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

13. If you were affected by flooding, did it:		
Answer Options	Response Percent	Response Count
Damage your home	0.0%	0
Damage your business	0.0%	0
Cause erosion	0.0%	0
Damage yard or cropland	0.0%	0
Was a temporary nuisance	0.0%	0
Affected access to property	0.0%	0
No damage	0.0%	0
Not applicable to me	0.0%	0
<i>answered question</i>		0
<i>skipped question</i>		15

14. If you were affected by flooding, please rate the severity:		
Answer Options	Response Percent	Response Count
Severely damaged my property	0.0%	0
Created a long term (greater than one week) loss of use of my yard or land	0.0%	0
Created a short term (less than one week) loss of use	0.0%	0
Was a minor inconvenience	0.0%	0
<i>answered question</i>		0
<i>skipped question</i>		15

2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

15. What method of communication do you like best to learn about watershed information?		
Answer Options	Response Percent	Response Count
Scott County website	80.0%	12
Facebook	53.3%	8
Twitter	13.3%	2
WMO annual newsletter	13.3%	2
Newspaper	46.7%	7
Email	46.7%	7
Regular mail	20.0%	3
Other (please specify)	33.3%	5
<i>answered question</i>		15
<i>skipped question</i>		0



Additional comments:

- Scott County SCENE
- Next Door app
- Talking to Jim Henderson and Jacob Bushian about issues.

2018 Watershed Plan Update Public Online Survey (results as of 1/18/17)
16 questions

16. What did we miss? Feel free to leave any comments here.	
Answer Options	Response Count
	1
<i>answered question</i>	1
<i>skipped question</i>	14

Additional comments:

Standing water in alleys during the spring time. Poor or ineffective runoff plans.



Scott Watershed Management Organization

200 Fourth Avenue West

Shakopee, MN 55379-1220

952-496-8054 Fax 952-496-8496

www.scottcountymn.gov

January 9th, 2017 Community Conversations Scott County Government Center

1.) What city or township do you live in?

Belle Plaine	Belle Plaine Twp	Sand Creek Twp
Elko New Market	Blakeley Twp	St. Lawrence Twp
Jordan	Cedar Lake Twp	Spring Lake Twp
New Prague	Credit River Twp	
Prior Lake	Helena Twp	
Savage	Jackson Twp	
Shakopee	Louisville Twp	
	New Market Twp	

2.) How would you characterize the surface water quality in Scott County?

Very good	
Good	
Fair	
Poor	
Very Poor	
I Don't Know	1

Dan Patch Days
booth

3.) (a.) How do you use the lakes, streams and wetlands in your community and (b.) what needs to improve or stay the same for this to continue?

Canoeing, kayaking, paddle boarding	
Motor boating, including waterskiing, wakeboarding, etc.	
Swimming	
Fishing	
Hunting	
Wildlife watching	1
Walking or running near waterbody	1
Other: biking	1

[illegible]

4.) What concerns you about the condition of the lakes, streams, wetlands and groundwater in your community?

[illegible]

5.) If you live in a rural area, has your property been affected by flooding in the last 5 years?

YES	
NO	1

6.) If you were affected by flooding, did it:

Damage your home	
Damage your business	
Cause erosion	
Damage yard	
Damage cropland	
Was a temporary nuisance	
Affected access to property	
No damage	

7.) What method of communication do you like to learn about watershed information?

Scott County website	1
Speak Up Scott County	
Facebook	
Twitter	
Newspaper (Pacer)	1
Email	
Regular mail	
WMO annual Newsletter	
Scott County SCENE	1

Time for prioritizing exercise!



Scott Watershed Management Organization

1/4/2017

200 Fourth Avenue West

Shakopee, MN 55379-1220

952-496-8054 Fax 952-496-8496

www.scottcountymn.gov

January 4, 2017 Community Conversations
Scott County Government Center

1.) What city or township do you live in?

Belle Plaine	Belle Plaine Twp	Sand Creek Twp
Elko New Market	Blakeley Twp /	St. Lawrence Twp
Jordan	Cedar Lake Twp	Spring Lake Twp
New Prague	Credit River Twp	
Prior Lake	Helena Twp	
Savage	Jackson Twp	
Shakopee	Louisville Twp	
	New Market Twp	

2.) How would you characterize the surface water quality in Scott County?

Very good	
Good	
Fair	
Poor	
Very Poor	
I Don't Know	/ /

3.) (a.) How do you use the lakes, streams and wetlands in your community
and (b.) what needs to improve or stay the same for this to continue?

Canoeing, kayaking, paddle boarding	
Motor boating, including waterskiing, wakeboarding, etc.	
Swimming	
Fishing	/
Hunting	/
Wildlife watching	/
Walking or running near waterbody	/ /
Other:	fix Clark's lake

[illegible]

4.) What concerns you about the condition of the lakes, streams, wetlands and groundwater in your community?

[illegible]

5.) If you live in a rural area, has your property been affected by flooding in the last 5 years?

YES	<input checked="" type="checkbox"/>
NO	<input checked="" type="checkbox"/>

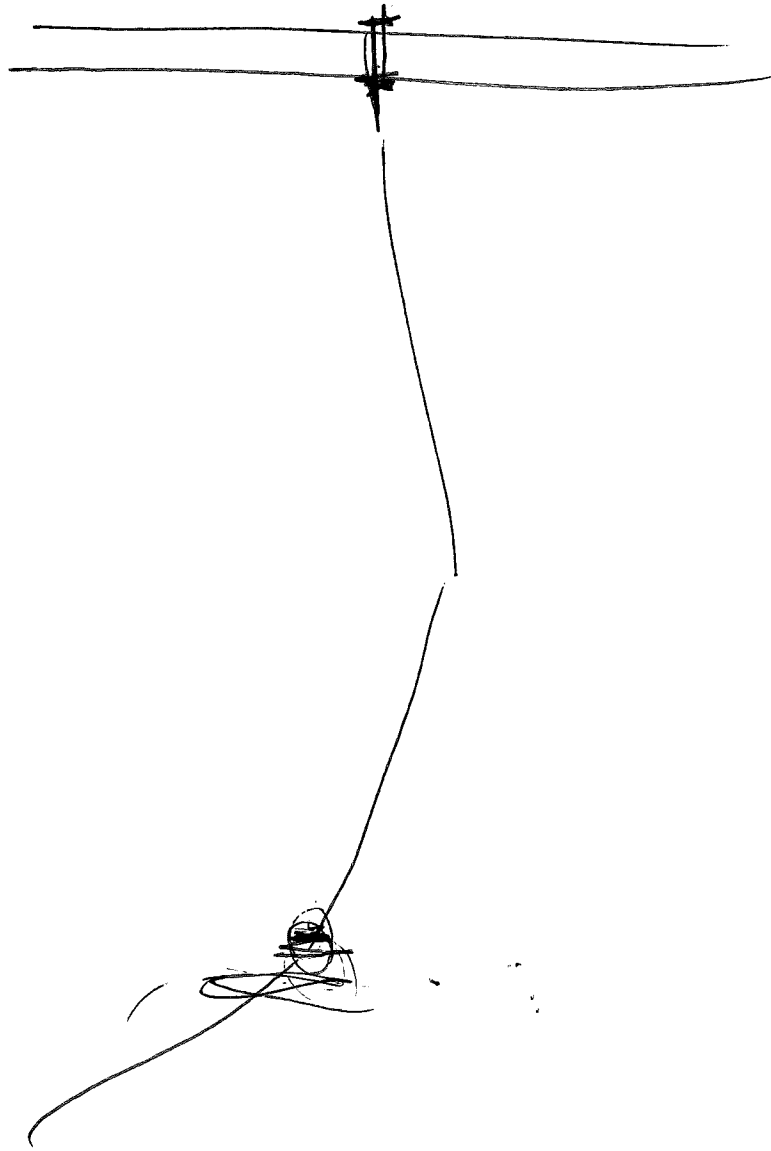
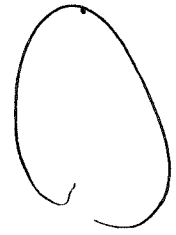
6.) If you were affected by flooding, did it:

Damage your home	<input checked="" type="checkbox"/>
Damage your business	<input type="checkbox"/>
Cause erosion	<input checked="" type="checkbox"/>
Damage yard	<input type="checkbox"/>
Damage cropland	<input type="checkbox"/>
Was a temporary nuisance	<input type="checkbox"/>
Affected access to property	<input type="checkbox"/>
No damage	<input type="checkbox"/>

7.) What method of communication do you like to learn about watershed information?

Scott County website	<input type="checkbox"/>
Speak Up Scott County	<input type="checkbox"/>
Facebook	<input type="checkbox"/>
Twitter	<input type="checkbox"/>
Newspaper	<input type="checkbox"/>
Email	<input checked="" type="checkbox"/>
Regular mail	<input type="checkbox"/>
WMO annual Newsletter	<input checked="" type="checkbox"/>
Meetings (information)	<input checked="" type="checkbox"/>

Time for prioritizing exercise!





Scott Watershed Management Organization

200 Fourth Avenue West

Shakopee, MN 55379-1220

952-496-8054 Fax 952-496-8496

www.scottcountymn.gov

1/4/2017

**January 4, 2017 Community Conversations
Scott County Government Center**

1.) What city or township do you live in?

Belle Plaine	Belle Plaine Twp	Sand Creek Twp
Elko New Market	Blakeley Twp	St. Lawrence Twp
Jordan	Cedar Lake Twp //	Spring Lake Twp
New Prague	Credit River Twp	
Prior Lake	Helena Twp	
Savage	Jackson Twp	
Shakopee	Louisville Twp	
	New Market Twp	

2.) How would you characterize the surface water quality in Scott County?

Very good	
Good	
Fair	//
Poor	
Very Poor	
I Don't Know	

3.) (a.) How do you use the lakes, streams and wetlands in your community and (b.) what needs to improve or stay the same for this to continue?

Canoeing, kayaking, paddle boarding	//
Motor boating, including waterskiing, wakeboarding, etc.	//
Swimming	//
Fishing	//
Hunting	//
Wildlife watching	
Walking or running near waterbody	//
Other:	Live on lake

Fish kills

[illegible]

5.) If you live in a rural area, has your property been affected by flooding in the last 5 years?

YES	
NO	/

6.) If you were affected by flooding, did it:

Damage your home	
Damage your business	
Cause erosion	
Damage yard	
Damage cropland	
Was a temporary nuisance	
Affected access to property	
No damage	

7.) What method of communication do you like to learn about watershed information?

Scott County website	//
Speak Up Scott County	
Facebook	//
Twitter	
Newspaper	
Email	//
Regular mail	/
WMO annual Newsletter	

Time for prioritizing exercise!

Community Conversations for the Scott Watershed Management Plan

January 4, 2017



EVALUATION

Community Conversation guests: We hope you found this experience as valuable and informative as we have. If there is something we can do to improve our Community Conversations events, please let us know by answering these short questions (feel free to continue on the back of the sheet):

1. Do you feel that the time you spent with us tonight in this Community Conversation was productive and valuable to you? Why or why not?

Yes, it let us know about the projects within the watershed as well as the projects they are forgetting.

2. When you explained your points of view, do you feel that they were understood and accepted by others at your table?

Yes, everyone seemed very open to ideas although there were very few people at the table.

3. What worked well, or didn't work well, that we should improve for the next Community Conversation event?

I liked the boards describing projects,

APPENDIX B

(Needs & Gaps Analysis)

Needs Assessment based on Input from the Technical Advisory Committee May 31, 2017

Goal 1: Wetland Management. To protect and enhance wetland ecosystems and ensure/encourage a measurable net gain of wetlands functions and acreage.

<p>Description: Wetlands provide a variety of functions and values which are important to the overall character and function of a watershed. Functions are physical, chemical and biological processes that take place within a wetland system. Values are the social and economic benefits that wetland systems provide to the general population. Examples of functions include water storage, flood desynchronization, nutrient retention and transformation, wildlife and aquatic habitat, groundwater recharge and discharge areas, and influence on atmospheric processes. Past wetland drainage plays a key role in the issues facing aquatic resources in the WMO. As discussed in Sections 1 and 2, there are thousands of acres of drained or partly drained wetlands and miles of ditches in the WMO. This contributes to increased and accelerated runoff as flood storage areas are lost and drainage efficiency is improved. These changes are in turn thought to be a contributing factor to Issue #2 (stream bank stability and loss of habitat) and #3 (surface water quality impairments) as discussed in Section 2. Nutrient retention/reduction functions are also an important function of wetlands. Some wetland types are very effective at de-nitrification. This function is particularly important in the southwest portions of the WMO where monitoring of Ditch 10, Roberts Creek and the Blakeley ravines have shown high nitrate levels. Because of the value of wetlands to watershed functions, it is important to both protect and enhance or restore wetlands to prevent further degradation of these functions, enhancement and restoration to address Issues #2 and #3, and improve conditions and help achieve WMO Goals 2 and 4.</p> <p>The importance of wetland restoration is further documented in the Sand Creek Impaired Waters studies completed by the WMO in July, 2010 (Scott WMO, 2010a and b). These studies showed that wetland restoration was one of the most effective practices for reducing sediment and addressing the turbidity impairment in the creek.</p> <p>Priority: During the public input period, upland storage was ranked high priority.</p>		
Needs	Adequacy of Existing Programs and Regulations	Potential Management Gaps
Need inventory of wetlands	An updated National Wetland Inventory of wetlands in Scott County was recently completed by the Minnesota Department of Natural Resources. Data used to complete the inventory was based on 2010 and 2011 aerial imagery, radar imagery, topographic data (digital elevation models using LiDAR), soils data, existing wetland data, and DNR basin inventories. The last update to the dataset was completed on 3/20/17.	No gap
Need function and value assessment	Currently the WMO does not require Wetland Management Plans, and instead relies on Functions and Values assessments completed at the time of development. Some of the cities within the WMO, however, have completed Wetland Management Plans that completed Function and Values Assessment as a means of classifying wetlands into various management classes.	No gap
Need to educate public officials	The WMO has an Education Program, but it does not specifically target public officials. The value of wetlands is occasionally discussed at Watershed Planning Commission meetings and at public information meetings.	The WMO provides education on wetlands in an opportunistic manner, rather than a systematic approach specifically geared toward wetlands and public officials.
Need incentives	<p>The Scott WMO has two strategies offering incentivesThe first is <i>Strategy 1.3.1: Incentives Payments.</i> This strategy consists of promoting wetland restoration and enhancement through the WMO’s Cost Share and Incentive Program in conjunction with the Scott SWCD. In 2013 the Cost Share and Incentive Program offered a \$2,000 per acre incentive payment for restoring wetlands under a 15 year agreement. The second is <i>Strategy 1.3.3: Promote Public Values Incentive Program</i> which provides incentives and operates through County ordinances to offer density or regulatory incentives with Planned Urban for restoring or enhancing wetlands.</p> <p>Neither strategy, however, has been very effective at motivating wetland restoration. Since inception of the TACS program in 2006 only ten wetland restoration projects have been complete totaling 29.1. Another restoration of 17 acres was completed as part of a separate Wetland Restoration and Enhancement Program with the NRCS in the upper portions of the Sand Creek watershed. No wetland restorations have been completed by the County as part of the Public Values Incentive Program which was put into ordinance in 2009.</p>	While current incentive programs have not been very effective, the programs are in place. Changes to improve performance of the TACS program are considered on an annual basis, balancing cost considerations with adoption rates. With respect to the County’s Public Values Incentives, development crashed in 2009, and the past 8 years are not perceived as a good indicator of efficacy of the incentives long-term.

Needs Assessment based on Input from the Technical Advisory Committee May 31, 2017

Need to partner on potential projects	Restorations that have been completed were done so in partnership with others and the WMO has numerous strategies promoting coordinating and partnering – including coordinating and partnering with Le Sueur and Rice SWCDs in the upper portions of the Sand Creek watershed. In addition, BWSR has received funding for a new round of the Conservation Reserve Enhancement Program (CREP), which the SWCDs will promote.	No gap
Need technical assistance	The Scott WMO in conjunction with the Scott SWCD currently has a technical assistance and cost share program. Landowners within the WMO receive free technical assistance from WMO staff or staff of the Scott SWCD. The program started in 2006. Strategy 2.3.3: Technical Assistance. This strategy consists of providing the staffing to provide technical assistance to landowners, and municipalities interested in conservation. This assistance includes providing assistance, design, operation and coordination of the cost share program and targeted projects as well as day-to-day assistance to landowners interested in other state and federal programs or in conservation on their own.	No gap
Need to prioritize areas for storage	The WMO contracted with BARR to identify potential regional ponding and wetland restoration sites in the Sand Creek and Credit River watershed. This information was used by the Scott SWCD to identify priority wetland restoration sites as part of the WREP project and Strategy 1.3.4: Targeted Wetland Restoration/Riparian Reforestation Program. Many Landowners have been contacted, but little interest has been found..	Have not developed priorities and systematically contacted landowners in the upper portions of the Sand Creek watershed.
Need to educate landowners	The WMO has an Education Program. Through this program, the WMO and the Scott SWCD occasionally have articles in the county bi-monthly newsletter and other outlets regarding the importance of wetlands, and permitting requirements.	The WMO provides education on wetlands in an opportunistic manner, rather than a systematic approach specifically geared toward wetlands.
Need to restore drained wetlands	As demonstrated throughout this matrix the WMO has promoted wetland resotations, and supported the efforts of partner SWCDs in their efforts to do the same. The WMO acknowledges the results have been slow to accumulate.	While current incentive programs have not been very effective, the programs are in place.
Need local banks	The WMO has a strategy for banking: Strategy 1.1.4: Assist With Opportunities to Acquire Land for Banking and Mitigation and as part of this strategy tried unsuccessfully during the current plan cycle to negotiate with one landowner for the acquisition of easements for setting up a bank. The WMO has also supported staff time at the Scott SWCD to promote the development of wetland banks.	The WMO hasn't been successful with getting wetland banking credits to date. However, a strategy is in place, and conversations continue with landowners for potential acquisitions.

Needs Assessment based on Input from the Technical Advisory Committee May 31, 2017

Goal 2: Surface Water Quality. To protect and improve surface water quality.

<p>Description: Surface water is an important resource in the WMO. Failure to address water quality issues can lead to impairment of water resources and can affect recreational uses, aquatic habitat, wildlife, groundwater quality, and other water use activities. In fact, numerous water bodies in the Scott WMO are already listed as impaired and Issue #3 in Section 2 is just that – “Surface water quality is impaired.” Discussions with the Watershed Planning Commission (WPC), the Technical Advisory Committee (TAC), the WMO Board and others has shown that preserving water quality and improving impaired waters is a high priority.</p> <p>The following policies and strategies improve and protect water quality by focusing on the management gaps and priorities identified in Section 2. In particular, the WMO will continue to implement its standards, continue to implement (and try to expand) its cost share program; and will also work to implement the green infrastructure vision, and improve the understanding of water quality challenges so that informed decisions can be made. The policies and strategies under Goal 1 above, that preserve, restore, and enhance wetland water quality functions or restore geomorphic processes such as flood storage in wetlands are also part of the overall WMO process for addressing water quality.</p> <p>Priority: During the public input period, this was ranked high priority.</p>		
Needs	Adequacy of Existing Programs and Regulations	Potential Management Gaps
Need monitoring program	The WMO has a surface water quality monitoring effort that uses data collected by others for major streams and rivers, periodically augments that data with collection efforts of its own, collects data on a cyclic basis for the smaller streams (Picha, and Roberts Creek), supports volunteers for the collection of lake data, and relies on data collected by three rivers park district for Cleary, Murphy and Hanrehan Lakes. The WMO does not monitor for fish or macroinvertebrates instead relying on data collected by the MPCA and the Metropolitan Council. The WMO does work with DNR to complete annual aquatic plant surveys on where it helps sponsor curlyleaf pondweed treatments (Currently Cedar, McMahon, O’Dowd and Thole Lakes). In addition to the above monitoring the MPCA in 2014 and 2015 completed intensive monitoring throughout the WMO and upper portions of the Sand Creek watershed including fish and macroinvertebrates.	There are gaps with respect to assessing water quality trends (i.e, management response) on the smaller streams with respect to both water chemistry and biology. There is also a gap with respect to assessing trends with respect to biology on Sand Creek and Credit River at timeframes less than what MPCA uses for WRAPs monitoring. The Metropolitan Council completes macroinvertebrate monitoring annually on Sand Creek and the Credit River, but there is a potential gap since the metrics used are not the same as those used by the MPCA for listing determinations. There is also a potential gap with respect to pesticide residuals. Finally, there is a gap with respect to the identification of pollutant source areas, particularly chlorides and bacteria – see row titled “Need targeted monitoring to identify sources” below for additional discussion.
Need rainfall network monitoring	The Scott SWCD manages a rainfall monitoring network with volunteer landowners around the county. Scott County currently has eleven volunteer monitors. Monitors send daily readings to the District on a monthly basis. After the District collects the necessary data, the information is then sent on to the State Climatology Office at the University of Minnesota. Monitors are located in Blakely, St. Lawrence, Cedar Lake, Spring Lake, Credit River townships and the cities of Belle Plaine, Shakopee and Savage.	TAC recommended staying on the same cyclic monitoring schedule for the smaller streams, but also augmenting both major and small stream monitoring with additional synoptic monitoring at multiple locations to help identify sources of chloride and bacteria.
Need county-wide inventory of what’s being monitored	The WMO has compiled a description of existing surface water quality monitoring efforts, and the SWCD recently compiled information on the status of groundwater monitoring. A summary of these compilations is presented in Section 1 of the updated Plan.	There is a potential gap if the continuously recording station planned by Scott County Emergency Management is not installed.
Need community education	Scott WMO has a very active Education and Outreach program regarding surface water quality. This includes efforts by Scott County staff, as well as supporting Scott SWCD operation of the Scott Clean Water Education Program (SCWEP). SCWEP was developed out of a need from local government organizations in Scott County to meet the educational requirements of the	No gap
	Scott WMO has a very active Education and Outreach program regarding surface water quality. This includes efforts by Scott County staff, as well as supporting Scott SWCD operation of the Scott Clean Water Education Program (SCWEP). SCWEP was developed out of a need from local government organizations in Scott County to meet the educational requirements of the	No gap as the WMO and others have educational efforts regarding surface water quality. However, the WMO can improve efforts by being more intentional about building community capacity and using new research and programs such the Master Water Stewards Program.

Needs Assessment based on Input from the Technical Advisory Committee May 31, 2017

	Municipal Separate Storm Sewer System (MS4) Stormwater Pollution Prevention Plans (SWPPP). Program partners are: Credit River Township, Jackson Township, Scott County, Scott Soil & Water Conservation District, Scott Watershed Management Organization, Spring Lake Township, Louisville Township, Vermillion River Watershed Joint Powers Organization, Prior Lake-Spring Lake Watershed District, and the Lower Minnesota River Watershed District. SCWEP focuses to educate and inform residents about ways to improve water quality of our lakes and rivers. Our message is “Clean Water Starts with Me!” The program offers free workshops on raingardens, shoreline restoration and native prairies. An annual workplan is created with different projects for multiple target audiences. The WMO intentionally hosts volunteer events and engages volunteers in order to promote community around water issues.	
Need targeted monitoring to identify sources	As stated in the need on the first row of this goal there are some monitoring program gaps. Studies completed by the WMO on Sand Creek and Credit River have identified source areas with respect to sediment and phosphorous. However, monitoring to identify hot spots or source areas with respect to other pollutants (chlorides, bacteria and nitrates) has not been completed.	There is a gap with respect to the identification of pollutant source areas, particularly chlorides and bacteria .
Need to promote practices that improve water quality	The WMO has a Land & Water Treatment Program focused on implementation. It includes the Technical Assistance and Cost Share Program that has since its inception is 2006 has enabled the installation of 675 practices, a Capital Improvement Program which has lead to the construction of approximately 2 dozen larger projects throughout the WMO, an Aquatic Invasive Species control effort that has completed curlyleaf pondweed control treatments on a number of lakes, and a Watershed Stewards Grant problem that has enabled others to complete carp control efforts and native vegetation plantings.	No gap
Need to build capacity with landowners	The WMO developed an intentional effort for public outreach and land and water stewardship based on landowner survey results and principals around building community capacity. This effort is detailed Table 3-7 of the existing Plan. The WMO has completed an additional landowner survey, and is working with its partners to further expand capacity building with the Plan update. In fact, capacity building has been identified as one of the major themes of the new Plan.	No gap
Need to continue to work with local conservation delivery system	The WMO’s TACs Program works in partnership with the NRCS and local SWCDs, and is led by the Scott SWCD. The WMO has no intent of changing this arrangement.	No gap
Need grants	The WMO and SWCD have been very successful in obtaining grants over the last 10 years, not only to help do studies, but to implement what was found in those studies. Over \$4 million has been awarded in grants to the WMO from various agencies over the past few years.	Have historically been reasonably successful.
Need to continue to collaborate with partners/agencies on continuing basis	Almost everything the WMO has completed has been in partnership with another organization or with landowners. The WMO recognizes the value of partnerships and building enduring partnerships has been identified as one of the major guiding principles for the new Plan.	No gap – WMO is committed to partnerships.

Needs Assessment based on Input from the Technical Advisory Committee May 31, 2017

Goal 3: Groundwater Management. To protect groundwater quality and supplies.

<p>Description: Scott County and Scott WMO residents rely on groundwater as their primary source of drinking water. It is extremely important to ensure that the Scott WMO has a safe and adequate supply of drinking water which is essential for our health and the health of our community. Municipalities are considered public water suppliers and provide water to people that live within city limits, as well as schools, businesses, etc. Public water supplies are regulated by the Minnesota Department of Health. Private wells are wells outside of city limits installed on properties in rural areas. The well owner must protect and maintain the well to ensure it continues to provide safe drinking water. The Minnesota Well Index (MWI) provides information about wells and borings in Minnesota. Scott County provides water testing kits to the public to test their well water. In 2011, the WMO randomly tested 67 wells in the rural area for nitrates and atrazine. No atrazine was found in the WMO groundwater, only a couple samples showed some nitrates but well below the 10 ppm standard.</p> <p>Priority: During the public input period, this was ranked high priority.</p>		
Needs	Adequacy of Existing Programs and Regulations	Potential Management Gaps
Need monitoring	In anticipating of completing this Plan update the SWMO contracted with the Scott SWCD to research and compile a review of groundwater monitoring efforts within Scott County. This study found that while there is little coordination among agencies regarding monitoring plans and strategy, data was being collected across the county on both groundwater quantity (i.e., levels) and quality. More is collected in the urban areas where there are water utilities as part of their responsibilities under the Safe Drinking Water Act. Quality monitoring in the rural areas is limited to the use of voluntary test kits and a onetime designed sampling effort by the SWMO. .	There is not a systematic on-going monitoring in the rural areas of the county for documenting groundwater quality.
Need to identify recharge areas	Recharge areas have been identified for community systems over a certain area through the Wellhead Protection Plans. The Scott WMO has a strategy to support wellhead protection efforts (<i>Strategy 3.2.3: Support Wellhead Protection Efforts</i>). This strategy consists of supporting wellhead protection planning efforts with staff time and technical assistance when requested by LGUs. Entities completing Wellhead Protection Plans do complete Drinking Water Source Management Areas (DWSMAs) based on an analysis of recharge. A layer identifying those areas can be found in the individual Wellhead Protection Plans, MDH, or on the Scott County website here: http://scottcountymn.gov/308/Geographic-Information-Systems-GIS In addition, the Scott County Geologic Atlas (Setterholm, 2006) Plate 6 maps Surface Recharge and Surface Infiltration.	No gap
Need to identify what we want to monitor	Water utilities monitor for a number of parameters under the Safe Drinking Water Act. In the rural areas there are no specific requirements. Test kits available for purchase from the County for testing coliforms and nitrate, fluoride, arsenic, manganese and lead. The onetime rural well sampling study completed by the SWMO included nitrates, and atrazine.	MDH has recommended adding arsenic to any designed sampling study.
Need inventory of existing monitoring programs	In anticipation of completing this Plan update the SWMO contracted with the Scott SWCD to research and compile a review of groundwater monitoring efforts within Scott County.	No gap
Need public education on recharge areas	The SWMO has not had any kind of intensive or sustained education effort regarding groundwater, let alone one about recharge areas. Information on DWSMAs are delineated for municipal wells in urban areas as part of Wellhead Protection Plans, and maps are available from MDH. The SWMO staff are not aware of public use or demand for such information, nor are staff aware of how municipalities use this information to guide development and land management in ways that are protective of the DWSMA with the exception of septic system compliance efforts.	Two potential gaps were identified as: 1) lack of understanding by County/SWMO on how information about DWSMAs is being used, and 2) public education.
Need to promote conservation	The SWMO occasionally promotes water conservation in various outreach	Effectiveness of current municipal or water utility efforts at promoting water

Needs Assessment based on Input from the Technical Advisory Committee May 31, 2017

	efforts, but does not do so in an intentional or sustained manner. The SWMO does know that Cities and Water Utilities promote conservation, but it has not completed as assessment of the effectiveness of these efforts. Metro SWCDs have recently developed a water conservation audit tools that they are looking to pilot at the time of drafting this matrix.	conservation is unknown.
Need state policy decision (infiltration & reuse)	A draft policy document was released by the State for comment in October 2017.	State policies and guidance are not in place, but progress in being made.

Needs Assessment based on Input from the Technical Advisory Committee May 31, 2017

Goal 4: Flood Management. To protect human life, property, and surface water systems that could be damaged by flood events.

<p>Description: Flooding and the damages caused by flooding, are one of the most visible processes that can take place in a surface water management system. Images of high water levels inundating croplands, homes, and businesses are images that do not fade easily after a flood event recedes. Flooding can be caused by many different types of events, such as short intense rainfall events that often result in urban flooding or from long term weather phenomena, such as a prolonged period of precipitation or large quantities of snowmelt that often affect larger stream systems and landlocked areas. Regardless of the source, the effect is the same: physical and social damages result.</p> <p>In order to provide flood protection, there are several basic principles of flood management that apply. First, this goal seeks to prevent the placement of people, homes, and businesses in harms way. Second, the goal is intended to prevent new and redevelopment from making known flooding problems worse as a result of their actions. Third, this goal recognizes that to provide flood protection, the surface water management systems must be operated and maintained to prevent their failure. Lastly, this goal recognizes that we should gain a better understanding of the flooding areas that we know about, assess past events, as well as the areas that are unknown at this time. By preventing the creation of new flooding problems and identifying potential issues, the goal seeks to minimize the resources expended in response to flooding, through a less costly effort in advance.</p> <p>In addition to preventing flooding, the policies and strategies under this goal include efforts to address known problem areas consistent with issues identified in Section 2.</p> <p>Priority: This wasn’t identified as a high priority during the public input process, but the WMO considers it important.</p>		
Needs	Adequacy of Existing Programs and Regulations	Potential Management Gaps
Need flow monitoring – upland streams, subwatershed outflows	Flow monitoring on Sand Creek in the City of Jordan and Credit River in the City of Savage has been underway since the early 1990s. MPCA/USGS also has a station on the Minnesota River at Jordan. The Scott WMO has periodically monitored flow at additional sites on Sand Creek, the Credit River, and their tributaries.	There are potential gaps in upstream areas of Sand Creek and Credit River (and their tributaries) since these were being monitored periodically, and for smaller streams in the SWMO namely Roberts and Brewery Creeks.
Need to discourage activities that may negatively impact	The SWMO, the County and local municipalities have adopted through SWMO Standards, local ordinances and Local Water Plans a number of things to keep infrastructure and homes out of harms way, insure infrastructure is properly sized, and to moderate runoff rates and volumes with development. These include the following WMO strategies that have been incorporated into Local Water Plans: <i>Strategy 4.1.1: Require Floodplain and Shoreland Ordinances;</i> . <i>Strategy 4.1.2: Low Floor Elevation Standards;</i> <i>Strategy 4.1.3: Floodplain Capacity Standard;</i> <i>Strategy 4.2.1: Peak Runoff Rate Control Standards;</i> <i>Strategy 3.1.1: Stormwater infiltration criteria;</i> and <i>Strategy 4.2.2: Land Locked Basin Standards</i> .	The WMO has Standards in place to keep infrastructure out of harms way and to control/minimize impacts with new development, and communities have adopted them through their Local Water Plans. These standards, however, focus on new development and largely exempt agricultural activities. Thus, there is a potential gap with respect to new agricultural activities – particularly tilling.
Need to identify priority areas for storage	The SWMO completed assessments of the Sand Creek (within the SWMO), and Credit River watersheds to identify and prioritize potential storage areas as part of implementing the current plan.	No gap
Need upland storage	The SWMO has taken the information on priority storage areas from the study described above for Sand Creek worked with the County to allow dedication of these areas at the time of development as Public Values where under a PUD process the county could then provide some negotiated benefits to the developer. Identified Credit River sites have not yet been added to the Public Values mapping. Wetland restoration has also been included as a Public Value. However, since establishment of these Public Values development has largely ceased and no developers has chosen the PUD path with these Public Values. In addition, to the development permitting efforts to encourage dedication of priority storage sites, the SWMOs Technical Assistance and Cost Share program (TACS) also includes the promotion of several practices to moderate runoff on existing lands. These include: native prairie plantings, and wetland restoration. Other practices in the TACS program , while not being the primary emphasis also have runoff moderation benefits (i.e., cover crops, Water and	Various programs are offered by the SWMO and the county, but they have yet to be utilized by the development community.

Needs Assessment based on Input from the Technical Advisory Committee May 31, 2017

	<p>Sediment Control basins, etc).</p> <p>Finally, two of the Capital Improvement Projects recently completed by the SWMO included detention basins in areas upstream of ravines.</p>	
Need to manage citizen expectations	<p>The SWMO tries to make information available to the public, and staff has included articles in the County newsletter regarding the SCENE about trends regarding rainfall, and where information can be found regarding floodplains. MNDNR is also producing some new tools with the using the updated flood insurance studies that the county intends to post with it’s on-line mapping program. These tools include depth of flooding, probability of flooding over 30 years and the changes from the previous flood maps.</p>	<p>No gap as the WMO try to make information available to the public. However, the effort is not systematically focused on managing expectations concerning flooding.</p>
Need to educate citizens	<p>See row above.</p>	<p>No gap. However, we could do more if resources are available.</p>
Need to assess past flood events	<p>Information from past floods and storms has been used in updating flood studies, and by local communities in Scott County to identify problem areas and reduce risks over time. The County’s All Hazards Mitigation Plan has also looked at historic flood information to identify risks, solicit mitigation ideas. SWMO itself has not, however, completed a systematic review of historic floods other than recognizing risk shown in mapped floodprone areas, and areas with recurring problems .</p>	<p>While an overall systematic assessment of past flood events has not be completed in a single study, staff do not feel this is a gap as at risk areas have been documented, identified through a number of overlapping observations, experiences and studies. Pending updated Flood Insurance Rates Maps are also based on more recent study and topography.</p>
Need lessons learned report from 2014	<p>There has not been a formal debrief about the storm specific to the SWMO. Scott County Association for Leadership and Efficiency (SCALE), however, has asked staff from local governments in the county to provide updates in 2017 regarding the status of mitigation efforts, and future vulnerabilities. Through this effort, staff are collaborating and updating elected officials.</p>	<p>An intentional debrief has not been completed.</p>

Goal 5: Meaningful Public Engagement. To increase public engagement in decision making and implementation.

Description: The Scott WMO has been working for years to change The Scott Clean Water Education Program (SCWEP) began in 2010. After six years, momentum continues to build, with programs woven into outreach activities among many partnering agencies. The program’s goal is to make clean water choices second nature for all who live and work in Scott County. SCWEP has incorporated the goal into the marketing materials using the theme of “Clean Water Starts with Me!” In addition, a survey of Sand Creek watershed landowners was completed by the Department of Forest Resources at the University of Minnesota in 2012. This study called Perspectives on Water Resources Management: A Survey of Sand Creek and Vermillion River Watershed Landowners is available at: http://www.forestry.umn.edu/prod/groups/cfans/@pub/@cfans/@forestry/documents/asset/cfans_asset_379379.pdf. This has produced a number of interesting findings. The purpose of the study is to assist water resource professionals and community decision makers in better understanding landowners’ beliefs, attitudes and behaviors associated with water resources and conservation practices. Specific study objectives were to assess (1) landowner values and beliefs about their communities, the environment, water quality issues and water resource management; (2) landowner current and future conservation behaviors; and (3) who or what influences landowners’ conservation decisions. to: 1) inform the public of its activities, and 2) engage the public to encourage stewardship so that the organization can become more efficient at protecting and or improving its resources.

Priority: During the public input period, this was ranked high priority.

Needs Assessment based on Input from the Technical Advisory Committee May 31, 2017

Needs	Adequacy of Existing Programs and Regulations	Potential Management Gaps
Need to be able to listen	The SWMO has <i>Strategy 5.2.3: Provide Opportunities for Public Input</i> , and both the Watershed Planning Commission and Board meetings are open to the public. The County website also has ways for citizens to make inquiries and the Community Services Division has a policy of getting back to citizen within 24 hours of an inquiry (whether phone, web or e-mail). The SWMO has also used more formal means of getting public input. For example, as part of the current Plan update process the SWMO hosted a number of Community Conversation meetings, and a survey to solicit input on the future Plan issues and outcomes. The SWMO has also worked with the University of Minnesota Center for Changing Landscapes to complete a couple of formal surveys of land owners in the watershed to understand their motivations and interests, and has another scheduled for completion in 2018. The County also completes a bi-annual citizen survey to gather input, and the Scott SWCD completed a targeted effort to meet and interview all the large farmers in the County and get their input.	It is difficult to assess whether or not the SWMO is getting adequate public input despite all of the efforts described in the adjoining box. The SWMO has had good response rates to formal surveys but not had many people in attendance at meetings. Water resources, issues, impacts and outcomes are distal to most citizens, and they engage mostly when it impacts them directly.
Need time to develop relationships	The SWMO and the Scott SWCD have been intentional about developing relationships by assigning staff specific community groups or individuals to get to know. The SWMO has <i>Strategy 5.2.4: Provide Opportunities for Public Participation in Stewardship Events</i> . This strategy consists of providing opportunities for public participation involving stewardship and to work in community where realtionships and community identify can be fostered.. Examples include tree planting, riparian vegetation enhancement, river cleanup events, etc. Finally the SWMO emphasizes staff training/understanding of negotiation.	Similar to the discussion above about the ability to listen it is difficult to assess whether the SWMO has a gap with respect to developing relationships. The SWMO prioritizes relationship building and intentionally spends time on it. Since starting this the number of land owner technical assistance requests at the Scott SWCD has substantially increased, and the SWMO has a number of successful partnerships.
Need to know who is influential	The SWMO does not have a formal process for identifying influential individuals. However, through the intentional relationship building efforts described previously the SWMO and staff know community leaders.	Through intentional relationship, building efforts the SWMO and Scott SWCD staff generally know who the leaders are.
Need to know communities	It isn't a written strategy in the plan, but the SWMO and Scott SWCD assigns certain county staff to create relationships with different groups we work with (lake associations, sportsmans's clubs, etc.) Those groups have some influence on their communities. In addition, the SWMO and Scott SWCD has completed a number of surveys and landowner interviews in an attempt to know both individuals and communities.	The SWMO and Scott SWCD have a robust effort to get to know various communities.
Need to bring in early (to decisions)	As described above the SWMO has a number of ways it tries to get input from the public. It also has <i>Strategy 6.1.2: Continue the Technical Advisory Committee meetings</i> . This strategy consists of communicating with state staff, city staff, township officials, township engineers and County Public Works employees to solicit their advice. Similarly the SWMO has <i>Strategy 5.2.1: Maintain and Enable the Watershed Planning Commission</i> . The Watershed Planning Commission is the SWMO's citizen advisory committee which meets monthly to advise the staff and the County Board regarding operation of the SWMO. Finally, the SWMO reaches out to specific affected communities for consultation. For example, the SWMO invited all the landowners around McMahon to a meeting to discuss delaying a proposed alum treatment before making that decision.	Scott County has a process for working with development early on in the process of developing land. The SWCD works with landowners early on in land changing decisions on private property. The WMO schedules at least one TAC meeting each year to connect with state, city and township staff to better understand potential problems or project partnerships. It has been suggested by members of the TAC group that the WMO hold more or regularly schedule TAC meetings throughout the year for us to connect more often. Advice from citizens is regularly solicited through the Watershed Planning Commission, and specific communities are consulted when identifiable and appropriate.
Need flexibility/ability to take advantage of opportunities (move quickly)	The SWMO acknowledges this need and tries to adapt quickly. To that end the current Plan identifies metrics that are used to assess progress both short and long term with respect to each goal. These metrics are compiled and considered annually. The SWMO and the Scott SWCD are also continuously trying to	The SWMO acknowledges that while it is trying to fulfill this need, it can always get better.

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	improve various programs so that flexible decision processes are incorporated. For example, a decision process has been developed for the TACS program to allow more streamlined decision making for applications where benefits are more certain.	
Need to communicate accurate information	The SWMO has a number of strategies to compile and make available information as follows: Strategy 5.3.1: Make Scientific Studies and Products of the Scott WMO Readily Available to the Public. This strategy consists of making the studies and products of the WMO available to the public through the website, press releases, open house meetings, libraries and by request. Strategy 5.3.2: Specific Information and Education Materials. The Scott WMO recognizes that the scientific studies described above are technical, and are generally not written for the general public. This strategy consists of the collection and/or creation of specific outreach materials written for the general public. Strategy 5.3.4: Use Multiple Outlets to Distribute Information. The WMO recognizes that various information outlets reach different audiences. This strategy articulates the WMO’s intention of using multiple outlets to distribute information when possible. Strategy 6.2.1: Keep public informed. This strategy consists of keeping the public informed of the WMO’s activities. Avenues for information distribution the WMO will use include: having WPC on cable access, mandatory notices, annual reports, newsletters, website, articles in the press and Scott County SCENE. Strategy 7.6.2: Use Long Term and Short Term Metrics to Measure Progress.	The SWMO acknowledges that while it has a number of strategies to compile and make available information, it is not always good at doing so around focused messages or in a manner understandable by the public.
Need to show consequences	The SWMO in recent years, through its work with the Center for Changing Landscapes, has come to recognize that awareness of consequences in an important activator for getting landowners to act with respect to conservation on their land. The SWMO and the Scott SWCD have communicated this to staff and are encouraging staff to address this activator in personal conversations and information/education materials produced.	The SWMO is trying to highlight consequences in various document and conversations, but effectiveness of these efforts is difficult to ascertain and is thus unknown.
Need to manage expectations	The SWMO tries to make information available to the public, and communicate trends, challenges and reasonable expectations in various media and conversations.	<ul style="list-style-type: none">• The SWMO tries to bring this into conversations and outreach materials, but does not have an outreach campaign specifically targeted at managing expectations.
Need to be personally relevant	SWMO leadership and staff understand the needs to make issues and actions personally relevant to citizens, and as such has developed a number of means of gathering information from individuals and the community as discussed throughout this matrix.	The SWMO is intentional about collecting information about the people, organizations and institutions in the watershed in an effort to understand what is relevant and motivates people locally.

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Goal 6: Public Investment. To minimize public expenditures and promote efficiency.

<p>Description: One of the primary reasons for doing water resources planning is to manage the resource, head off problems, and operate programs in ways that are cost effective and control expenses over the long term. This means minimizing redundancy, focusing on priorities, operating efficiently and being accountable.</p> <p>Priority:</p>		
Needs	Adequacy of Existing Programs and Regulations	Potential Management Gaps
Need consequences – cost of no action prevention cost vs. long-term	<i>Strategy 5.3.1: Make Scientific Studies and Products of the Scott WMO Readily Available to the Public.</i> This strategy consists of making the studies and products of the WMO available to the public through the website, press releases, open house meetings, libraries and by request. <i>Strategy 5.3.2: Specific Information and Education Materials.</i> The Scott WMO recognizes that the scientific studies described above are technical, and are generally not written for the general public. This strategy consists of the collection and/or creation of specific outreach materials written for the general public. <i>Strategy 6.1.3: Routinely share data and information.</i> This strategy consists of sharing data on water quality, studies or other information that would be helpful or beneficial for the management of water resources.	Our office has communicated several times with the local newspaper to comprehensively explain the results from certain studies with cost vs benefit information. We will continue to share similar findings with the public to show we are being transparent and managing public dollars efficiently.
Need to prioritize - emerging issues	As part of completing the current Plan update the SWMO solicited input on on-going or emerging issues, and outcomes from the public, agencies, local partners, and local organizations. The SWMO together with the Scott SWCD also intentionally completed ordinal ranking exercises comparing various outcomes, issues and attributes to explicitly identify and discuss priorities.	Results of the SWMO’s issues identification and prioritization discussions are presented in Section 2 of the updated Plan.
Need to share data/equipment	The SWMO has <i>Strategy 6.1.3: Routinely share data and information</i> under which it shares and posts data and information. The SWMO also shares monitoring equipment, and operates from a principle of partnering	No gap. Although opportunities for greater sharing and partnering may be unintentionally missed.
Need to focus	The SWMO’s ability to focus is demonstrated by the SWMOs ability to complete items called for in the current Plan. All but a handful of strategies called for in the Plan were initiated or completed, including the completion of 12 of 15 CIPs called for in the Plan.	No gap.
Need minimum redundancy	The SWMO has tried to be sensitive to inefficiencies redundant efforts, and the current includes the following fundamental principles: “ <i>That WMO efforts should build on, improve, or enable existing control/management efforts before starting duplicate efforts;</i> “ <i>That the various efforts and programs of the WMO should work together with the efforts of others in the watershed and adjoining watershed toward an overall visions.</i> ”	The SWMO has had this as a fundamental principle. However, there will always be some redundancy in regulations at the state vs local level since some implementation of certain regulations is at both levels.

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	The current Plan also includes <i>Strategy 7.2.1: Use Existing Regulations as the Basis for WMO Standards.</i> and <i>Strategy 7.3.1: Emphasize LGU Implementation Through Local Water Plans</i> as specific ways to minimize redundancy	

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Goal 7: Build a Resilient Landscape to Changing Precipitation.

<p>Description: In 2014 and again in 2016 the Twin Cities area has experienced record rainfall. The impacts of the heavy June rainfall were apparent: flooded farm fields and delayed field work, flooded basements, mudslides and flooded roads leading to transportation disruptions, and negative consequences for outdoor activities including construction. An estimated \$1 million in damage to existing conservation practices occurred during the 2014 June rains alone. Resiliency is the ability to recover readily from challenges. Without the ability to bounce back, threats to our land and water resources can linger or worst case, become irreversible. Resiliency is not something that happens naturally. In many cases, we must purposefully help the environment bounce back. We must promote a natural systems approach that builds resiliency so we are ready for what Mother Nature throws our way.</p> <p>Priority:</p>		
Needs	Adequacy of Existing Programs and Regulations	Potential Management Gaps
Need to inform public of changes happening, create understanding that things change	As discussed throughout this matrix the SWMO has a variety of efforts to inform and engage the public. This includes disseminating information about changes in precipitation. However, the SWMO does not have an information campaign specifically around changes occurring.	The SWMO does not have an information campaign specifically designed around communicating changes that are occurring.
Need stories	Over the last few years the SWMO and SWCD have made it a priority to tell success stories in the County Scene in regards to waterbody water quality improvements, conservation stewardship of landowners, Capital Improvement Projects, and projects being done by local organizations (lake associations, sportsman’s clubs) to help improve water quality. This is part of an overall capacity building strategy to hold up leaders who are implementing conservation, build confidence that people have the ability to incorporate conservation, and emphasize conservation as a social norm. To enable this SWMO and Scott SWCD staff have been provided with training The SWMO have also recently completed an ArcGIS on-line StoryMap to highlight efforts in the Sand Creek watershed..	No gap.
Need living cover	The currenrnt Plan includes Strategy 2.3.1: Cost Share and Incentive Program for Existing Land Uses . This strategy consists of continuing the WMO Cost Share and Incentive program. This strategy in combination with Strategy 2.3.3: Technical Assistance, make up one of the primary means by which many of the strategies in this Plan are implemented and the combined effort of the two strategies is known as the Technical Assistance and Cost Share program, or TACS program. Under this program, incentives and cost share are available to landowners for living cover type practices including native prairie plantings and cover crops. Native prairie plantings are popular in the SWMO and larger Sand Creek watershed. The popularity of cover crops is increasing as demonstrated by applications for over 500 acres in 2017. The Scott SWCD also has a popular annual tree sale that averages tens of thousands fo seedings sold per year. The Scott SCWD also started a Soil Health Team in 2017. Finally, the SWMO and the Scott SWCD have completed several prairie plantings on park land in partnership with Scott County Parks.	No gap.
Need storage/timing of flows	See discussion under Goal 4: Flood Management above where as part of the “need to identify priority areas for storage” and “need for upland storage” are discussed. As part of these discussions it is noted that studies have been completed for the Sand Creek and Credit River watershed identifying storage areas. Modeling was also completed as part of the Sand Creek study in order to assess the cumulative impact of the priority storage areas on the timing of flows. The current Plan also includes Strategy 4.2.1: Manage New Development and Drainage Alternations To Prevent Increases in Flood Flows and Downstream Impacts . This strategy requiring peak runoff rate	There are several potential gaps with this need. First, modeling was not completed to assess timing in the Credit River study. Second the storage areas identified in the Credit River area have not yet been added to the maps for Public Values in the County Comprehensive Plan. Third, there are areas in the SWMO outside the Sand Creek and Credit River study areas that have not been assessed. Fourth, Strategy 2.1.2 is not up to date with the NPDES Stormwater (MS4 or General Construction) permit requirements, or the MIDS calculator.

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	control with new development in incorporated areas not exceed predevelopment rates, and presettlement rates in unincorporated areas. Presettlement rates are used in the unincorporated areas because of the lack of active stormwater management, and the lower density makes it possible. The current Plan also has <i>Strategy 2.1.2: Promoting Disconnected Stormwater Management and Low Impact Development</i> as a means to encourage runoff volume management with new development.	
Need incentive program for BMPs	As described a number of times in this matrix the SWMO has a Technical Assistance Cost Share and Incentive Program (TACS program) to enable landowners to implement BMPs. Implementation of this program is lead by the Scott SWCD and the Le Sueur and Rice SWCDs are also partners. The program has been reasonably successful having enabled the installation of over 675 BMPs since its inception in 2006. The number of landowners asking for assistance has also significantly increased over this time period such that the Scott SWCD currently has between 200 and 250 technical assistance requests open that they are responding to.	No gap.
Need to address tiling	No strategy or policy exists currently.	This is a gap.
Need regulatory standards – rate & volume	As discussed above under the row for “Need storage/timing of flows the SWMO has Standards for regulating flow rates and volumes. In addition, all local units of government in the SWMO that need Local Water Plans, have completed them with equivalent Standards. However, the Standard for volume control is ½ inch and is based on the use of volume credits. Other agencies and institutions have completed more comprehensive analyses of volume management and have adopted 1 inch as the generally accepted requirement since the SWMO adopted its approach.	The SWMO runoff volume requirement is not consistent with the NPDES Stormwater (MS4 or General Construction) permit requirements, or the MIDS calculator.
Need to identify infrastructure at risk	The SWMO has not completed a systematic analysis of infrastructure at risk. However, problem areas are known by staff based on experience, Local Water Plans typically include stormwater modeling and identification of flood prone areas, Flood Insurance studies in the county were recently updated, and the County’s All Hazards Mitigation Plan includes analysis of infrastructure risk.	No gap.
Need to identify infiltration areas	Scott County Geologic Atlas (Setterholm, 2006) Plate 6 shows Subsurface Recharge and Surface Infiltration.	No gap. This would be more helpful to do on a site by site basis with development or larger project planning. Not sure that a county-wide inventory would be useful at this time.
Need to influence farm policy or state policy	No strategy or policy exists currently in the SWMO Plan.	The SWMO does not get involved in federal level policy on the farm bill.
Need technical assistance to landowners	As discussed previously the SWMO and the Scott SWCD operate the TACS program through which landowners can request assistance. This includes both technical and financial assistances. Technical assistance is made available whether or not the landowner is eligible or chooses to apply for financial assistance. The program has been successful. The number of landowners asking for assistance has also significantly increased over time such that the Scott SWCD currently has between 200 and 250 technical assistance requests open at any particular time.	No gap.

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Goal 8: Public Drainage. Maximize the public value of the public drainage system.

<p>Description: Public drainage is defined as a system of watercourses and public and private ditches for carrying off excess water. A Drainage Authority is an entity that has jurisdiction over a drainage system. Currently the Scott County Board of Commissioners is the drainage authority and the Survey department at Highway coordinates maintenance on Scott County’s drainage ditches. Scott County Administration has asked the Natural Resources department to consider taking over management of public ditches in Scott County. Development of engineering and environmental data to support a drainage project can be complex and require significant financial resources. Drainage projects are financed by the benefitted landowners and it is in the financial interest of the project proposers to ensure that the engineering services performed are what is required to properly evaluate the project and complete the required regulatory and drainage authority process. Drainage authorities may also have multiple roles to play in relation to a drainage project (e.g. Drainage authority, WCA LGU, road authority, environmental review RGU). Drainage authorities use engineering and environmental data provided in engineer's reports to make decisions on whether to order various actions related to the development of the project (e.g. survey, viewers, establishment, etc.).</p> <p>Priority: Revisions to MN Chapter 8410 require a Public Drainage Goal in watershed plans.</p>		
Needs	Adequacy of Existing Programs and Regulations	Potential Management Gaps
Need vision for management	The SWMO and associated staff at the County have historically had only a limited role dealing with County Ditches under MN. Statute 103E. For the most part County Ditches are handled by the County Ditch Inspector who is currently the County Surveyor and that office. The exception is County Ditch 5 which overlays portions of Porter Creek as it goes through the Bradshaw Lakes Wildlife Area. Here the SWMO sponsored a study and analysis of options for managing the Ditch given the competing interests of wildlife management and drainage. Otherwise the County has taken the position of responding to maintenance requests and has not developed long term plans for any of the ditches.	This is a gap as only limited planning has been completed.
Need to know condition of existing ditches	County ditches are inspected on a 5 year cycle, or when issues are reported or maintenance is requested.	No gap
Need better record keeping system	Discussions with the County Surveyors office indicate that records are kept, but they go back quite a ways in time, and need to be better organized. The County is currently working with GIS to create a tracking system.	It is acknowledged that a better record keeping system is needed.
Need maintenance plan	The County currently completes maintenance when requested. There are no formal plans for scheduling and completing maintenance.	Gap. No maintenance plan in place. No schedule in place.
Need abandonment plan	No reference to the development of an abandonment plan exists in MN Statute 103E, and the County has no such plans.	While there is technically no requirement for having abandonment plans, the SWMO acknowledges that having a vision for future operations, or abandonment trigger, for ditches that no-longer provide agricultural drainage benefits may be of benefit.
Need restoration plan	No reference to restoration back to a meandering stream exists in Mn Statute	While there is technically no requirement for having restoration plans, the

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	103E, and the County has no such plans in place.	SWMO acknowledges that having a vision for future operations, or abandonment trigger, for ditches that no-longer provide agricultural drainage benefits may be of benefit.
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APPENDIX C

(Prioritization Summary)

2019 Watershed Plan Update

OUTCOMES PRIORITIZATION EXERCISE with WPC & SWCD

Boards 8/28/17

Watershed Resource Outcomes

Outcome	Human Health & Safety	Groundwater Protection	Soil Health	Surface Water Quality Protection	Terrestrial Habitat	Flooding	Surface Water Quality Restoration	Aquatic Habitat	Aquatic Biota
Score	82	76	64	59	33	31	27	14	4
Ranking	#1	#2	#3	#4	#5	#6	#7	#8	#9

Surface Water Quality Pollutants

Priority Pollutant	Toxics/Metals	Bacteria	Nutrients	Sediment/TSS	Chloride	Fish IBI	AIS
Score	67	60	47	28	24	14	1
Ranking	#1	#2	#3	#4	#5	#6	#7

Waterbody Attributes

Priority Attribute	Contributes to drinking water aquifer	Waters contributing high pollutant loads downstream	Prevention	Listed on 303d Impaired Waters List	Restoration	Data trends indicate water quality is degrading	Likelihood of achieving demonstrable results
Score	166	139	136	135	110	105	105
Rank	#1	#2	#3	#4	#5	#6	#7

Has local citizen financial support/ partnership	Habitat is degraded	Is the action specifically identified in a study?	Is a TMDL complete?	Has AIS infestation	Other state identified category of high quality water (i.e. Outstanding Resource Water)	Has Public Access	Waterbodies with no current data
90	65	60	53	42	31	24	4
#8	#9	#10	#11	#12	#13	#14	#15

APPENDIX D

(Standards)

SCOTT WATERSHED MANAGEMENT ORGANIZATION

STANDARDS



2018 Update

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POLICY STATEMENT

On October 30, 1996, the Minnesota Board of Water and Soil Resources sent the Scott County Board of Commissioners a letter notifying the Board of its responsibility for water management in all of the areas of the County that were previously under Joint Powers Watershed Management Organizations (i.e, Sand Creek, Shakopee Basin, and Southwest Scott Joint Powers Watershed Management Organizations). The Credit River Watershed Management Organization also eventually became a non-implementing organization, but later than the other three. The County Board established the Scott WMO as the organization for water management in these non-implementing areas of the county. The Scott Watershed Management Organization (Scott WMO) is a watershed management organization as defined in the Metropolitan Surface Water Management Act (Minn. Statutes Chapter 103B). This Act provides the Scott WMO with power to accomplish its statutory purpose – to protect, preserve and manage surface and groundwater systems within the Scott WMO and requires the development of Rules and Standards.

The Scott WMO has adopted a Comprehensive Water Resources Management Plan pursuant to the Acts and Minn. Rules Chapter 8410 and updated this plan in 2008 to cover the period of 2009 to 2018. A second update was completed in 2019 covering the period of 2019-2026. The updated 2019 Water Plan provides the management goals, policies and objectives that the Scott WMO will use to protect, improve, preserve, and manage water resources in the WMO, and the need and reasonableness for rules and ordinances to enforce the objectives of the plan. The following Standards implement the plan's goals, policies, and strategies. The individual policies that create a need for the individual standards will not be repeated in this section. Each of the policies may be found in the goals, policies, and strategies Section 3 of the main body of the Plan.

Increased quantities of stormwater over presettlement conditions leads to larger volumes of water and higher flow velocities, which in turn provide the erosive power to damage stream channels and ultimately render them unstable. These issues are transferred downstream as additional water and scouring power is added along a watercourse. Many times the streams or rivers outlet into lakes, wetlands or other watercourses (receiving waters) and the material being transported is deposited in areas where lower velocities decrease the waters' sediment carrying capacity. This leads to issues associated with sedimentation in downstream areas, which can, among other things, decrease floodplain storage, damage water resources, and destroy habitat. Loss of topsoil due to erosion also renders soil less fertile and makes it more difficult to establish vegetation on disturbed areas. Aside from the physical issues described above, there are economic implications due to increased volumes and flow of stormwater. Unstable stream channels over time have the ability to depress land values, damage property, endanger high value structures and render prime building locations unbuildable directly impacting the health, safety and welfare of the County. Accelerated stream bank erosion can also increase the rate and severity of stream channel migration and resulting property loss. In addition, unstable channels undermine bridges,

clog culverts, and can otherwise damage infrastructure requiring costly repairs and ensuring legal issues for both public agencies and private individuals.

With an increase in water quantity, there is usually a corresponding decrease in water quality. Water quality is an important amenity in the County – both in terms of surface water and groundwater. Stormwater can carry a variety of pollutants, which can affect downstream areas as well as groundwater through infiltration.

Wetlands can be impacted directly by development and land disturbing activities; and indirectly by hydrologic and water quality changes associated with development and land disturbing activities. Wetlands provide a variety of functions and values, which are important to the overall character and function of the watershed that they are a part of.

Groundwater is the primary source of potable water in Scott County. Improperly functioning individual sewage treatment systems (ISTS) can impact groundwater quality.

These Standards protect the public health, safety, welfare and natural resources of the Scott WMO by regulating the improvement or alteration of land and waters within the WMO to reduce the severity and frequency of high water, to preserve floodplain and wetland storage capacity, to improve the chemical and physical quality of surface waters, to reduce sedimentation, to preserve the hydraulic and navigational capacities of waterbodies, to preserve and protect channels and drainageways, to promote and preserve natural infiltration areas, protect groundwater, and to preserve natural shoreline features. In addition to protecting natural resources, these Standards are intended to minimize future public expenditures and liability on issues caused by the improvement or alteration of land and waters.

RELATIONSHIP WITH MUNICIPALITIES AND COUNTY

The Scott WMO recognizes that the control and determination of appropriate land use is the responsibility of the Local Units of Government (LGUs; i.e., municipalities and the county). The Scott WMO also intends that permitting and enforcement of these Standards will be the responsibility of the LGUs. LGUs are responsible for adopting Local Water Plans (LWP) that implement the Scott WMO Comprehensive Water Resource Management Plan. The Cities are the LGUs within their corporate limits. Since the County is the planning and zoning authority in the unincorporated area, the County is therefore responsible for the Local Water Plan in the unincorporated area and is considered the LGU for the unincorporated area.

LGUs that have an adopted Local Water Plan with rules and procedures equivalent to the Scott WMO Standards will be responsible for permitting and enforcement of the Standards. Until such time as the LGUs have equivalent Standards and procedures, the Scott WMO will play a direct role in projects and permit activities, as appropriate. An LGU can choose to adopt the Scott WMO Comprehensive Water Resources Management Plan without local specifications and defer to the Scott WMO for review, approval, inspection, and enforcement, provided that a fee structure for these services is in place.

Equivalency of Local Water Plans and associated ordinances will be determined according to the process in MN Statutes Chapter 103B and the Scott WMO Comprehensive Water Resource Management Plan (as amended). To determine equivalency the WMO will evaluate how the LGU's LWP, rule and ordinances:

1. Follow the policies and achieve the standards and goals of the WMO as articulated in the Scott WMO Comprehensive Water Resource Management Plan (as amended), and the criteria of the Scott WMO Standards (as amended);
2. Provide for the maintenance and long term protection and operation of facilities and improvements constructed and/or permitted by the LGUs;
3. Provide the ability for the LGUs to enforce, monitor and inspect facilities, and improvements;
4. Incorporate public involvement and comment in the development of their LWP, rules and ordinances; and
5. Coordinate the LWP with other Comprehensive Land Use Planning and official controls for managing growth within the LGU.

LGUs may adopt more restrictive standards. In addition, the Scott WMO recognizes that LGUs have different authorities and different ways of implementing programs that will necessitate language and varying approaches than presented in the following Standards.

For those LGUs that assume the authority to administer and enforce their LWP, the Scott WMO reserves the right to make inspections to view the actions of municipalities and the county in order to make sure

the Comprehensive Water Plan and these Standards are being followed. The Scott WMO also reserves the right to audit project approvals and permits by LGUs in order to assess conformance with WMO policies, standards, objectives and criteria. Once, an equivalency finding has been made, or LWP approved, the WMO will enter into a Memorandum of Understanding (MOU) with the LGU to transfer some or all of the WMO's permitting authority to the LGU. The MOU will specify the responsibilities of the LGU and the WMO, including notification and reporting requirements, auditing requirements, and variance procedures. If the LGU fails to properly implement an adopted Local Water Plan, the Scott WMO may revoke the Local Plan Approval, administer rules to enforce the standards within that LGU, and the WMO will not be responsible for liabilities, costs and damages caused by the lack of proper implementation.

The Scott WMO encourages LGUs to review required Erosion Control, Resource Management and/or Stormwater Management plans under these Standards for new development and redevelopment as early as possible in the sketch plan/concept plan review process prior to the preliminary plat approval process or site plan approval process.

The Scott WMO desires to provide technical advice to the municipalities and the county in the preparation of local stormwater/resource management plans and the review of projects that may affect water resources prior to investment of significant public or private funds.

A. STANDARD A - DEFINITIONS

For the purposes of these Standards, unless the context otherwise requires, the following words and terms shall have the meanings set forth below.

References in these Standards to specific sections of the Minnesota Statutes or Rules include amendments, revisions or recodifications of such sections.

The words “shall” and “must” are mandatory; the word “may” is permissive.

Agricultural Activity – The use of land for the growing and/or production and wholesale distribution of field crops, livestock, and livestock products for the production of income or own use, including but not limited to the following:

1. Field crops, including but not limited to, barley, beans, corn, hay, oats, potatoes, rye, sorghum, and sunflowers.
2. Livestock, including but not limited to, dairy and beef cattle, goats, sheep, hogs, horses, poultry, game birds and other animals including deer, rabbits and mink.
3. Livestock products, including but not limited to, milk, butter, cheese, eggs, meat, fur and honey.
4. Trees, shrubs, bushes, and plants for wholesale distribution.
5. Sod farming
6. Orchards
7. Other actions associated with the agricultural activities above, such as, but not limited to: clearing, grubbing, tilling, and construction and maintenance of site access points.

Agricultural Preserve – A land area created and restricted according to Minnesota Statute 473H.05 to remain in agricultural use.

Alteration or Alter – When used in connection with public waters or wetlands, is any activity that will change or diminish the course, current or cross-section of public waters or wetlands.

Applicant – Any person, owner, corporation or political subdivision that submits an application to a Local Unit of Government (LGU) for a permit under these Standards.

Best Management Practices or BMPs – Techniques proven to be effective in controlling runoff, erosion and sedimentation including those documented in the Minnesota Construction Site Erosion and Sediment Control Planning Handbook (BWSR, 1988); Protecting Water Quality in Urban Areas (MPCA, 2000); the Minnesota Urban Small Sites BMP Manual (Metropolitan Council 2001); The Minnesota Stormwater

Manual (2005) and other sources as approved by the Scott Watershed Management Organization: as such documents may be amended, revised or supplemented.

Bluff – A topographic feature such as a hill, cliff, or embankment in which the average grade of any portion of the slope is 30 percent or greater and there is at least a 25-foot rise in elevation. (See Guidance Manual for diagram depicting a defined bluff, bluff face, bluff impact zone, top of bluff and toe of bluff)

Bluff Overlay District – The Overlay District shown on the attached Map 1: “Bluff Overlay Districts of the Scott WMO” where potential bluffs exist. Only the areas identified as being located in a Bluff Overlay District as identified on Map 1 are subject to these requirements.

Bluff Face – The area between the toe of the bluff and the top of the bluff.

Bluff Impact Zone – A 25-foot zone at the top of a bluff, as defined

Bluff, Toe of – The point at the lower part of the bluff where the average slope levels off to 18 percent or less over a 50 foot segment or where there is a clearly identifiable break in the land from steeper land above to a gentler slope below the break.

Bluff, Top of – The point where there is a clearly identifiable break in the land, from steeper land below the break to a gentler slope above the break. If a break is not apparent, the top of the bluff is determined to be the higher point of a 50-foot segment with an average slope exceeding 18 percent.

Buffer – An area of natural, unmaintained, vegetated ground cover abutting or surrounding a watercourse, public waters wetland, or wetland.

BWSR – The Minnesota Board of Water and Soil Resources.

Commissioners – Appointed members of the Watershed Board or the Watershed Planning Commission.

Compensatory Storage – Excavated volume of material below the floodplain elevation required to offset floodplain fill.

Comprehensive Plan – The Scott County Comprehensive Plan as amended.

Comprehensive Water Resource Management Plan – The watershed management plan for the Scott Watershed Management Organization adopted and implemented in accordance with Minnesota Statutes, section 103B.231.

Construction Activity – Is a disturbance to the land that results in a change in the topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated

storm water runoff, leading to soil erosion and the movement of sediment into surface waters or drainage systems. The use of land for new and continuing agricultural activities shall not constitute a construction activity under these Standards.

Conveyance System – Is any storm sewer, culvert, pipe, manmade ditch, natural channel, pumping facility and forcemain intended to carry stormwater across or through a parcel of land undergoing subdivision or land disturbing activity.

County – Scott County, Minnesota

Dead Storage – The permanent pool volume of a water basin, detention basin or pond, or retention basin or pond or the volume below the runout elevation of a water basin, detention basin or pond, or retention basin or pond.

Detention Basin – Any natural or manmade depression for the temporary storage of runoff.

Development – The construction of any public improvement project, infrastructure, structure, street, or road, or the subdivision of land.

Dewatering – The removal of water for construction activity.

DNR – The Minnesota Department of Natural Resources

Drain or Drainage – Any method for removing or diverting water from waterbodies, including excavation of an open ditch, installation of subsurface drainage tile, filling, diking or pumping.

Easement – The right to use the land of another owner for a specified use. An easement may be granted for the purpose of constructing and maintaining walkways, roadways, individual sewage treatment systems, utilities, drainage, driveway, and other uses.

Energy Dissipation – Methods employed at pipe outlets to prevent erosion including but not limited to: concrete aprons, riprap, splash guards, and gabions.

Erosion – The wearing away of the ground surface as a result of wind, flowing water, ice movement. These processes are accelerated and intensified during land disturbing activities.

Erosion and Sediment Control Plan – A plan of BMPs or equivalent measures designed to control runoff and erosion and to retain or control sediment on the land during the period of land disturbing activities in accordance with the standards set forth in Standard E.

Excavation – The artificial removal of soil or other earth material.

Fill – The deposit of soil or other earth material by artificial means.

Final Stabilization – Stabilizing a disturbed site and establishing vegetation to 70% of the background vegetation condition.

Flood Fringe – the portion of the Special Flood Hazard Area (one percent annual chance flood) located outside of the floodway. Flood fringe is synonymous with the term “floodway fringe” used in the Flood Insurance Study for communities in Minnesota. In Minnesota, typically the area of the floodplain that can be filled or used without raising the regulatory floodplain elevation by more than ½-foot.

Floodplain – The area adjacent to a waterbody that is inundated during a 100-year flood (i.e., one percent annual chance flood).

Floodway – the bed of a wetland or lake and the channel of a watercourse and those portions of the adjoining floodplain which are reasonably required to carry or store the regional flood discharge.

Green Acres – Real property or real estate that qualifies as agricultural property having agricultural use under Minnesota Agricultural Property Tax Law, Minnesota Statute 273.11.

Hardship – As defined in Minnesota Statutes, Chapter 394.

Highly Susceptible Wetland Type – A wetland characterized as a sedge meadow; open or coniferous bog; calcareous fen; low prairie; coniferous or hardwood swamp; or seasonally flooded wetland.

Hydric Soils – A soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

Impervious Surface – A constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increases rate of flow than prior to development. Examples include rooftops, sidewalks, patios, driveways, parking lots, storage areas, and concrete, asphalt or gravel roads.

Infiltration Area – A stormwater retention method for the purpose of reducing the volume of stormwater runoff by transmitting a flow of water into the ground through the earth’s surface.

Infrastructure – The system of public works for a county, state, or municipality or private entity including, but not limited to, structures, roads, bridges, culverts, sidewalks; stormwater management facilities, conveyance systems and pipes; pump stations, sanitary sewers and interceptors, hydraulic structures, permanent erosion control and stream bank protection measures, water lines, gas lines, pipelines, electrical lines and associated facilities, and phone lines, telecommunications facilities and supporting facilities.

Land Disturbing Activity – Any change of the land surface to include removing vegetative cover, excavation, fill, grading, stockpiling soil, and the construction of any structure that may cause or contribute to erosion or the movement of sediment into waterbodies. The use of land for new and continuing agricultural activities shall not constitute a land disturbing activity under these Standards.

Landlocked Basin – A basin that is one acre or more in size and does not have a natural outlet at or below the existing flood elevation as determined using the Simplified Hydrologic Yield Method in Appendix B.

Least Susceptible Wetland Type – A wetland characterized as a gravel pit, cultivated hydric soil, dredged material or fill, or material disposal site.

Low Entry – The elevation at which surface water would begin to enter a structure through a window, door, or other opening in the structure.

Low Floor – The finished surface of the lowest floor of a structure.

Major Watershed – One of the 87 major watershed units delineated by the map titled State of Minnesota Watershed Boundaries, 1979, produced by the Minnesota Department of Natural Resources as included in the Wetland Conservation Act Rules 8420.0549.

Major Waterways – Intermittent and perennial streams defined as public waters as shown on Map 2 attached to these standards.

Mining – The extraction of sand, gravel, rock, black dirt, peat, soil and other material from the land surface and the removal thereof from the site.

Moderately Susceptible Wetland Type – A wetland characterized as shrub-carr, alder thicket; fresh wet meadow not dominated by reed canary grass; or shallow or deep marsh not dominated by reed canary grass, cattail, giant reed or purple loosestrife.

Municipality – Any city or township wholly or partly within the Scott Watershed Management Organization.

NRCS – The Natural Resource Conservation Service.

Normal Water Level (NWL) – For a reservoir with a fixed overflow, means the lowest crest level of that overflow. For a reservoir whose outflow is controlled wholly or partly by movable gates, siphons or other means, it is the maximum level to which water may rise under normal operating conditions, exclusive of any provision for flood surcharge. For a closed depression wetland, it is the maximum level to which the water may rise under normal precipitation conditions exclusive of any provision for flood surcharge.

Nonpoint Source – Nutrient and pollution sources not discharged from a single point e.g. runoff from agricultural fields, feedlots or urban streets.

NPDES – National Pollutant Discharge Elimination System, a type of permit regulating surface water discharges enabled under the Clean Water Act, and in Minnesota administered by the Minnesota Pollution Control Agency.

NPDES General Construction Permit – The General Permit Authorization to Discharge Stormwater Associated with Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Program, Permit No: R100001 issued by the Minnesota Pollution Control Agency August 1, 2013 (as amended).

Ordinary High Water (OHW) Level – “Ordinary high water level” is determined by the DNR and means the boundary of water basins, watercourses, public waters, and public waters wetlands, and:

1. The ordinary high water level is an elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial;
2. For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel; and
3. For reservoirs and flowages, the ordinary high water level is the operating elevation of the normal summer pool.

Outlot – A parcel of land that is platted without any rights to construct a structure. The parcel must be further subdivided or replatted to obtain building rights.

Owner – Any individual, firm, association, partnership, corporation, trust or any other legal entity having proprietary interest in the land.

Parcel – A parcel of land designated by plat, metes and bounds, registered land survey, auditors subdivision or other accepted means and separated from other parcels or portions by its designation.

Permittee – The person or political subdivision in whose name a permit is issued pursuant to these Standards.

Person – Any individual, trustee, partnership, unincorporated association, limited liability company or corporation.

Political Subdivision – “Political subdivision” means a county, city, town, school district, or other local government jurisdiction to which the state provides state aids or on which the state imposes state mandates.

Public Health and General Welfare – Are defined in Minnesota Statutes, Section 103D.011, Subdivisions 23 and 24.

Public Improvement Project – A public road or utility project that provides a common benefit to the community (such as, but not limited to: collector and arterial roads, sanitary sewers, watermain, and trunk stormwater facilities) and may be included in an approved Capital Improvement Plan or Transportation Plan of an LGU.

Public Waters – Any waters as defined in Minnesota Statutes, section 103G.005, subdivision 15.

Public Waters Wetlands – “Public waters wetland” means all types 3, 4, and 5 wetlands, as defined in United States Fish and Wildlife Service Circular No. 39 (1971 edition), not included within the definition of public waters, that are ten or more acres in size in unincorporated areas or 2-1/2 or more acres in incorporated areas.

Redevelopment – The rebuilding, repair or alteration of a structure, land surface or facility which creates less than 1 acre of new impervious surface, involves greater than 1 acre of land disturbance, and for which over 50 percent of the parcel involved is disturbed by a land disturbing activity. Note: for the purposes of these Standards if an activity creates more than 1 acre of new or additional impervious surface the activity is considered new development and exceptions in these Standards for redevelopment do not apply to the increased (new) impervious surface.

Retention – The prevention of direct discharge of stormwater runoff into receiving water; examples include systems which discharge through percolation, exfiltration, and evaporation processes and which generally have residence times less than three days.

Runoff – Rainfall, snowmelt or irrigation water flowing over the ground surface.

Sediment – The solid mineral or organic material that is in suspension, is being transported, or has been moved from its original location by erosion and has been deposited at another location.

Sedimentation – The process or action of depositing sediment.

Shoreland District – Shoreland areas regulated by a local municipal or county Shoreland Ordinance, or by Minnesota Statutes 103F. Generally Shoreland District consists of land located within a floodplain, within 1,000 feet of the OHW of a public water or public waters wetland, or within 300 feet of a stream or river.

Slightly Susceptible Wetland Type – A wetland characterized as a floodplain forest; fresh wet meadow dominated by reed canary grass; or a shallow or deep marsh dominated by reed canary grass, cattail, giant reed or purple loosestrife.

Stabilized – The exposed ground surface has been covered by appropriate materials such as mulch, staked sod, riprap, wood fiber blanket, or other material that prevents erosion from occurring. Grass seeding is not stabilization without appropriate cover materials.

Standard – A preferred or desired level of quantity, quality or value.

Stormwater Detention Pond – A natural or created ponding area that provides temporary storage of excess stormwater for the purpose of attenuating the peak rate of runoff by controlling the rate of pond discharge. Ponding areas that drain completely between storm events are dry detention ponds. Ponding areas that provide temporary storage in combination with a permanent wet pool are wet detention ponds.

Stormwater Management Facility – Includes all manmade features constructed at any time for the purpose of managing the conveyance of water and/or providing rate control, water quality, or volume control benefits. This includes, but is not limited to, storm sewer, culverts, ditches, detention and retention ponds, and infiltration basins, both existing and newly constructed.

Stormwater Management Plan – A plan for the permanent management and control of runoff prepared and implemented in accordance with Standard C.

Stormwater Quality Pond – A created ponding area per W. W. Walker (1987) criteria; which provides a permanent pool for the purpose of sediment and pollutant removal to reduce water quality impacts of urban development.

Stormwater Retention Pond – A natural or created ponding area which provides permanent storage of excess stormwater for the purpose of attenuating the peak volume of runoff, from which the only release of flow is by infiltration or evaporation.

Structure – Anything manufactured, constructed or erected which is normally attached to or positioned on land, including portable structures, earthen structures, water and storage systems, and parking lots.

Subdivision – The separation of an area, parcel, or tract of land under single ownership into two or more parcels, tracts, lots, or outlots.

Surface Water – All streams, lakes ponds, marshes, wetlands, reservoirs, spring, rivers, drainage systems, waterways, watercourses, and irrigation systems whether natural or artificial, public or private.

SWCD – The Scott Soil and Water Conservation District.

Water Basin – An enclosed natural depression with definable banks capable of containing water that may be partly filled with public waters.

Waterbody – All surface waters, water basins, watercourses and wetlands as defined in these Standards.

Watercourse – Any natural or improved stream, river, creek, ditch, channel, culvert, drain, gully, swale or wash in which waters flow continuously or intermittently in a definite direction.

Waters of the State – All stream, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

Watershed – A region draining to a specific watercourse or water basin.

Wellhead Protection Plan – A document that provides for the protection of a public water supply, submitted to the Minnesota Department of Health, is implemented by the public water supplier, and complies with: A) the wellhead protection elements specified in the 1986 amendments to the Federal Safe Drinking Water Act, United States Code, title 42, chapter 6A, subchapter XII, part C, section 300h-7 (1986 and as subsequently amended); and B) Minnesota Rules parts 4720.5200 to 4720.5290.

Wetland – Any wetland as defined in Minnesota Statutes, section 103G.005, subdivision 19.

Wetland Conservation Act or WCA – The Minnesota Wetland Conservation Act of 1991, as amended.

B. STANDARD B – GENERAL STANDARDS

1. REGULATION

- (a) All land disturbing activities, whether requiring a permit under these Standards or otherwise, shall be undertaken in conformance with best management practices and in compliance with the standards and criteria in these Standards.
- (b) No person shall conduct land disturbing activities without protecting adjacent property and waterbodies from erosion, sedimentation, flooding or other damage.
- (c) Land disturbing activities shall be planned and conducted to minimize the extent of disturbed area, runoff velocities and erosion potential, and to reduce and delay runoff volumes. Erosion and runoff controls, consistent with Best Management Practices (BMPs), shall be properly installed before commencing land disturbing activities, and sufficient to retain sediment on-site. Erosion and runoff controls shall be regularly inspected and maintained. Vegetation shall be installed over the disturbed areas promptly if the land disturbing activity ceases or is suspended, and upon completion. Pipe outlets must be provided with temporary or permanent energy dissipation if connected to a surface water.
- (d) When possible, existing natural watercourses and vegetated soil surfaces shall be used to convey, store, filter and retain runoff before discharge into public waters or a stormwater conveyance system.
- (e) When possible, runoff from roof gutter systems shall discharge onto lawns or other pervious surfaces to promote infiltration.
- (f) Use of fertilizer and pesticides in the shoreland protection zone shall be done so as to minimize runoff into public waters by the use of earth material, vegetation, or both.
- (g) When development density, topographic features, and soil and vegetation conditions are not sufficient to adequately handle runoff using natural features and vegetation, various types of constructed facilities such as diversions, settling basins, skimming devices, dikes, watercourses and ponds may be used. Preference shall be given to designs using surface drainage, vegetation and infiltration rather than buried pipes and man-made materials and facilities.
- (h) Whenever the Scott WMO or appropriate Local Unit of Government (LGU) determines that any land disturbing activity has become a hazard to any person, or endangers the property of another, adversely affects water quality or any waterbody, increases flooding, or otherwise violates these Standards, the owner of the land upon which the land disturbing activity is located, or other person or agent in control of such land, upon receipt of written notice from the Scott WMO or the

LGU, shall within the time period specified therein repair or eliminate such condition. The owner of the land upon which a land disturbing activity is located shall be responsible for the cleanup and any damages from sediment that has eroded from such land. The Scott WMO or LGU may require the owner to obtain a permit from an LGU under these Standards before undertaking any repairs or restoration.

C. STANDARD C – BLUFF STANDARDS

1. REGULATION

- (a) No person shall develop, redevelop or commence land disturbing activities on bluffs located in the Bluff Overlay District without protecting adjacent property and waterbodies from erosion, sedimentation, flooding or other damage.

2. CRITERIA

- (a) **Minimum WMO Bluff Standards:** Unless regulated as part of an approved LWP, any land disturbing activity, development or the redevelopment of land in a Bluff Overlay District shown on “Map 1: Bluff Overlay District of the Scott WMO” (attached to these Standards) shall require a topographic survey to determine if a bluff is present. At its discretion, the LGU or WMO (if permitting has defaulted to the WMO) may waive the topographic survey requirement where a review of the available contour information clearly indicates a bluff is not present. The standards below only apply to those areas as identified on Map 1: Bluff Overlay District of the Scott WMO. Where bluffs are present, the following Standards shall apply:

- (1) All grading, clear cutting, removal of vegetation and/or other land disturbing activities are prohibited in the Bluff Impact Zone and/or Bluff Face,
- (2) All structures shall be set back a minimum of 30 feet from the top of bluff,
- (3) All Individual and Community Sewage Treatment Systems (ISTS or CSTS) shall be set back a minimum of 50 feet from the top of bluff, and
- (4) All storm water ponds, swales infiltration basins, or other soil saturation-type features shall be set back a minimum of 50 feet from the top of bluff.

- (b) **Standards under an Approved LWP:** An LGU can identify certain bluffs in a mapped Bluff Overlay District where land disturbing activity, development or the redevelopment of land is allowed under certain conditions. These bluffs shall be identified and mapped in a Local Water Plan. In determining what bluffs are suitable for land disturbance activity, the LGU shall reference sources such as: Soil Survey, MLCCS, MCBS, etc. The LGU will need to demonstrate to the WMO in its Local Water Plan that any bluff identified for land disturbance activity is not an ecologically sensitive resource.

- (1) For those bluffs deemed suitable for land disturbance activity in an approved Local Water

Plan, the following Standards shall apply:

- (aa) Grading, clear cutting, removal of vegetation and/or other land disturbing activities may be allowed within the Bluff Impact Zone provided the activity is in compliance with the Local Water Plan's minimum performance standards. The LWP shall, at a minimum, require the following:
 - (1) The identification of any Bluff Preservation Areas where disturbance would be prohibited by LGU ordinance.
 - (2) The minimum Erosion and Sediment Control (ESC) BMP's include site stabilization and slope restoration measures needed to ensure the proposed activity shall not result in:
 - Adverse impact to adjacent and/or downstream properties or water bodies,
 - Unstable slope conditions, and
 - Degradation of water quality due to erosion, sedimentation, flooding and other damage as stated in Standard C (2).
 - (3) Prohibit all activities which would result in disturbances or destabilization of the Bluff Face.
 - (4) Preservation of existing hydrology and drainage patterns. Land disturbing activities shall not result in any new water discharge points along the bluff.
- (bb) The following activities shall be permitted within the Bluff Face, and shall not constitute prohibited activities under Paragraph 2(b)(1)(aa)(3):
 - (1) Maintenance, repair or replacement of public roads, and utility and drainage systems that exist on creation of the Bluff Overlay District.
 - (2) Disturbances that are part of an LGU approved plan to repair, grade or re-slope existing bluff faces that are eroding or unstable as necessary to establish stable slopes and vegetation.
 - (3) Vertical cuts into the bluff face up to 10 vertical feet, measured from the existing top of bluff, provided that no stormwater is directed over the bluff face and stormwater runoff, including roof drainage, is collected and conveyed to a stable discharge point.

- (4) Plantings that enhance the natural vegetation or the selective clearing of noxious, exotic or invasive vegetation, or the pruning of trees or vegetation that are dead, diseased or pose similar hazards.
- (2) For those bluffs deemed unsuitable for land disturbance activity and identified for preservation in an approved Local Water Plan, the following Standards shall apply:
 - (aa) All grading, clear cutting, removal of vegetation and/or other land disturbing activities are prohibited in the Bluff Impact Zone and/or the Bluff Face,
 - (bb) All structures shall be set back a minimum of 30 feet from the top of bluff,
 - (cc) All Individual and Community Sewage Treatment Systems (ISTS or CSTS) shall be set back a minimum of 50 feet from the top of bluff, and
 - (dd) All storm water ponds, swales, or other soil saturation-type features shall be set back a minimum of 50 feet from the top of bluff.
- (c) **Standards for LGU-sponsored Projects.** The LGU must demonstrate that any LGU proposed activity in the bluff does not: 1) impact adjacent properties, 2) result in unstable slope conditions and, 3) result in the degradation of water bodies from erosion, sedimentation, flooding and other damage as stated in Standard C (2).

3. EXCEPTIONS

- (a) Where the LGU has determined mining is appropriate, mining activities shall be exempt from paragraph 3. Criteria (a) and (b) provided that:
 - (1) an extractive use site development and restoration plan is developed, approved by the local government, and followed over the course of the project;
 - (2) the mining operation is conducted in such a manner as to minimize interference with the surface water drainage outside of the boundaries of the mining operation;
 - (3) that erosion and sediment control is provided in a manner consistent with paragraph 2. Regulation (a), (b), (c), (d), (g), and (h) of this Standard; and
 - (4) the landowner complies with all other applicable state and local regulations governing mining.

- (b)** Disturbances, grading or re-grading of abandoned mine slopes necessary to establish stable slopes and vegetation are exempt from paragraph 3. Criteria (a) and (b).
- (c)** For the purposes of constructing Public Improvement Projects, as defined under these Standards, land disturbances in the Bluff Impact Zone and Bluff Face may be permitted providing the project Proposer demonstrates to the LGU or Scott WMO (if permitting has defaulted to the WMO) an appropriate need for these activities to occur and that avoidance and minimization sequencing was followed.
- (d)** Maintenance, repair or replacement of public roads, and utility and drainage systems that exist on creation of the Bluff Overlay District.
- (e)** Disturbances that are part of an LGU approved plan to repair, grade or re-slope existing bluff faces that are eroding or unstable as necessary to establish stable slopes and vegetation.
- (f)** Plantings that enhance the natural vegetation or the selective clearing of noxious, exotic or invasive vegetation, or the pruning of trees or vegetation that are dead, diseased or pose similar hazards.

D. STANDARD D - STORMWATER MANAGEMENT

1. REGULATION

No person or political subdivision shall commence a land disturbing activity or the development or redevelopment of land that creates 1 (one) or more acres of new impervious surface, unless specifically exempted by Section 8 of this Standard page 36, without first obtaining an approved Stormwater Management Plan and permit from the appropriate LGU or the Scott WMO (if permitting has defaulted to the WMO).

2. CRITERIA

Stormwater management plans shall comply with the following criteria:

- (a) A hydrograph method based on sound hydrologic theory will be used to analyze runoff for the design or analysis of flows and water levels.
- (b) Runoff rates for the proposed activities, development or redevelopment within the seven cities (City of Savage, City of Shakopee, City of Prior Lake, City of Jordan, City of Belle Plaine, City of Elko New Market, and the City of New Prague,) shall:
 - (1) Not exceed existing runoff rates for the 2-year, 10-year and 100-year critical duration storm events;
 - (2) Not accelerate on or off-site water course erosion, downstream nuisance, flooding or damage as demonstrated by the applicant according to paragraph 2(d) of this Standard below; and
 - (3) Runoff rates may be restricted to less than the existing rates when necessary for the public health, safety and general welfare of the Scott WMO.
- (c) Runoff rates for the proposed activities in unincorporated areas shall:
 - (1) Not exceed pre-settlement runoff rates for the 2-year, 10-year and 100-year critical duration storm events for land areas currently within unincorporated areas of the Scott WMO (Note: As land is annexed into a city, the land being annexed carries with it the existing condition. Parcels developed after the date of this Standard within unincorporated areas will be regulated using pre-settlement conditions and this would then become the existing condition for the city once the area is annexed. If agricultural land is annexed, agriculture is the existing condition. If roads or streets are present they are part of the existing condition.)

The following curve numbers shall be used to analyze pre-settlement conditions:

Hydrologic Soil Group	Runoff Curve Number
A	30
B	55
C	71
D	77

For post-development runoff, drained hydric soils shall be assumed to revert to an undrained condition unless the applicant demonstrates that publicly owned and maintained drainage facilities will be adequate to maintain the drained condition.

- (2) Not accelerate on or off-site water course erosion, downstream nuisance, flooding or damage as demonstrated by the applicant according to paragraph 2(d) of this Standard below; and
 - (3) Runoff rates may be restricted to less than the presettlement rates when necessary for the public health, safety and general welfare of the Scott WMO.
 - (4) In situations where the smallest practical outlet as identified by the LGU or Scott WMO (when permitting has defaulted to the Scott WMO) is being used and the site will not meet the 2-year discharge rates as identified in the pre-settlement conditions, the site discharge may exceed the pre-settlement 2-year discharge rate if the volume of the 2-year critical duration event being discharged is less than existing 2-year discharge volume from the site and the assessment required in paragraph 2(d) below is provided and shows no impacts from the increased discharge rate.
- (d) An assessment of the potential for adverse impacts downstream of site improvements, whether on- or off-site, is required except when the proposed activity, development or redevelopment is less than 20 acres and less than 8 percent of the project area is covered by impervious surface, or when the rate control provisions of paragraphs 2(b) and 2(c) of the Standard, as applicable, are met; and the proposed activity, development or redevelopment does not increase runoff volume from the existing condition for the 2-year critical duration event (not including snow melt). To demonstrate that the proposed activity does not accelerate on or off-site erosion, downstream nuisance, flooding or damage, the applicant must complete an evaluation downstream to the point where the proposed activity is 10 percent of the drainage area (e.g. a 10 acre development must evaluate downstream to the point where the drainage area is 100 acres). The evaluation at a minimum must consist of an assessment of:

- (1) Potential impacts to areas surrounding landlocked lakes or ponds, or lakes or ponds with inadequate outlets where flood levels would be increased by added runoff volume.
 - (aa) Evaluations must include:
 - (1) An assessment of water levels in the water body resulting from the contributing watershed's full annual runoff yield during a 100-year wet year using the Simplified Hydrologic Yield Method (SHYM) (See Scott WMO Standards Guidance), or more rigorous methods for back to back 100-year critical events, for both existing conditions and fully developed watershed conditions; and
 - (2) The identification of public and private structures (including low floor and entry elevations of residences, and individual sewage treatment systems (ISTS)), and infrastructure (sanitary sewer, stormwater pipes and facilities, and roads) surrounding the water body and located within 2 vertical feet of the future conditions water level elevation predicted using the SHYM, or the elevation for the back to back 100-year critical event.
 - (bb) If there are public or private structures or infrastructure located within 2 vertical feet of the future conditions SHYM, or back to back 100-year critical event elevation, the applicant or LGU must demonstrate that no adverse impacts to health, safety and welfare, or property damage, would occur; or provide corrective actions. Corrective actions shall include the following as necessary to mitigate in proportion to the proposed project impact:
 - (1) Controlling post-development runoff volumes at existing conditions;
 - (2) Controlling runoff rates to less than existing conditions for cities described in Paragraph 2(b) of this Standard, or to less than pre-settlement rates for unincorporated areas (Paragraph 2(c) of this Standard);
 - (3) Protecting or re-locating impacted structures or infrastructure, or securing easements for additional flooded areas; or
 - (4) Other actions necessary to mitigate the impact.
- (2) Potential impacts to downstream infrastructure, public and private structures, and erosion along the drainage path and downstream public waters.
 - (aa) Evaluations must include:

- (1) The identification of existing public and private drainage easements;
 - (2) The locations, condition, and dimensions of the existing drainage infrastructure;
 - (3) The location and elevation of structures with low floors, or entries within 2 vertical feet of the 100-year critical storm flood level;
 - (4) The location and description of known existing flooding problems; and
 - (5) A hydrologic and hydraulic assessment of flooding impacts of the proposed project on downstream public and private structures.
 - (6) An assessment of existing and potential watercourse erosion, bank stability, bank protection, and watercourse slope;
 - (7) An assessment of the hydrologic and hydraulic capacity of the downstream public and private infrastructure;
 - (8) An assessment of property damages; and health, safety and welfare impacts relative to increased flooding of public and private infrastructure. Minnesota Department of Transportation guidelines shall be used to assess safety of flood levels at downstream driveways and road crossings.
 - (9) Provide photographic documentation of the status of the downstream drainage system for records that can be referred to in the years after the site is completed.
- (bb) If property damage, erosion, public health, safety and welfare impacts are identified the applicant must provide corrective action. Corrective actions shall include the following as necessary to mitigate in proportion to the proposed project impact:
- (1) Actions described in Paragraph 2(d)(1)(bb) of this Standard;
 - (2) Obtaining easements;
 - (3) The installation of stream bank stability and protection measures;
 - (4) The upgrading, protecting or re-locating impacted infrastructure; or
 - (5) Other actions necessary to mitigate the impact.

- (3) Potential impacts to wetlands with exceptional vegetative diversity functional value (see Standard G for determination of Exceptional value wetlands).
- (aa) Evaluation must include:
- (1) Delineation and functional assessment of wetlands according to Standard G;
 - (2) A hydrologic and hydraulic analysis of the before and after project water level bounce and period of inundation for wetlands with exceptional vegetative diversity for the 1-year, 2-year and 10-year critical duration events.
- (bb) The applicant must provide corrective actions that mitigate in proportion to the proposed project impact as specified in Paragraph 2(d)(3)(cc) of this Standard; if the water level bounce and period of inundation created by the storms evaluated in Paragraph 2(d)(3)(aa)(2) of this Standard exceeds the limit specified in the following table.
- (cc) Corrective actions shall consist of runoff rate and volume controls necessary to keep the water level bounce and period of inundation within the limits specified in the following table.
- (e) The minimum design capacity of all drainage systems shall accommodate the runoff from a 10-year storm event. All drainage systems and facilities shall be designed to withstand the runoff from the critical one hundred 100-year event or accumulative antecedent conditions without damage to the system or facility, downstream areas and/or significant risk to public health, safety and welfare unless waived in accordance with paragraph 3(c) of this Standard.

Hydroperiod standard	Highly susceptible wetlands*	Moderately susceptible wetlands*	Slightly susceptible wetlands*	Least-susceptible wetlands*
Storm Bounce 1 & 2-year events	Existing	Existing plus 0.5 feet	Existing plus 1.0 feet	No limit
Period of Inundation for 1 & 2-year events	Existing	Existing plus 1 day	Existing plus 2 days	Existing plus 7 days
Period of inundation for 10-year event	Existing	Existing plus 7 days	Existing plus 14 days	Existing plus 21 days

* See Standard A Definitions.

Source: Storm Water and Wetlands: Planning and Evaluation Guidelines for Addressing Potential Impacts of Urban Stormwater and Snow Melt Runoff on Wetlands. June 1997. State of Minnesota Stormwater Advisory Group.

- (f) Regional detention basins shall be utilized to manage peak flow rates and runoff volumes, and meet water quality objectives when feasible. On-site detention basins, volume control facilities, and permanent sedimentation and water quality ponds will be utilized for land disturbing activities, the development or redevelopment of land that creates greater than 1 acre of impervious surface when regional basins are not in place or feasible, or would not otherwise meet requirements for the protection of downstream areas according to Paragraph 2(d) of this Standard that are located between the project and the regional basin.
- (g) The LGU may approve alternative BMPs instead of permanent sedimentation and water quality ponds if it finds that the water quality performance of the proposed alternative BMPs is equivalent to that of a permanent sedimentation and water quality pond designed according to the criteria set forth for permanent sedimentation and water quality ponds in Paragraph 2(k) of this Standard below. The generally accepted performance of permanent sedimentation and water quality ponds designed to these criteria is 80% Total Suspended Solids removal on an annual average basis. The assumed performance for the BMPs shall be based on information from independent laboratory work, studies, or reference materials including the Minnesota Urban Small Sites BMP Manual (Metropolitan Council 2001), or The Minnesota Stormwater Manual (2005), as such manuals may be amended, revised or supplemented. The LGU may require monitoring of alternative practices and contingency plans similar to the requirements for the General Permit Authorization to Discharge Storm Water Associated With Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program Permit MN R100001 (NPDES General Construction Permit) issued by the Minnesota Pollution Control Agency, August 1 2003, as amended.
- (h) Analysis of flood levels, storage volumes and flow rates for waterbodies and detention basins shall be based on the range of rainfall and snow melt durations producing the critical flood levels and discharges.
- (i) Landlocked water basins may be provided with outlets if an outcome based analysis and resource oriented management review regarding downstream impacts is completed that demonstrates that:
 - (1) A hydrologic regime is maintained that complies with Standards G and I;
 - (2) Dead storage is provided to retain the fully developed future conditions SHYM predicted water volumes, or the back to back 100-year critical event water volume, above the highest anticipated groundwater elevation to the extent possible while preventing damage to property adjacent to the basin;

- (3) The outlet does not create adverse downstream flooding or water quality conditions, or materially affect stability of downstream watercourses according the criteria in Paragraph 2(d) of this Standard;
 - (4) Proposed development tributary to the land-locked basin has incorporated runoff volume control practices to the extent practical;
 - (5) There is a demonstrated need for an outlet to protect existing structures and infrastructure; and
 - (6) The outlet design is part of an approved comprehensive local water management plan.
- (j) Detention basins shall be designed to provide:
- (1) An outlet structure to control the 2-year, 10-year and 100-year critical storm events to runoff rates specified in Paragraphs 2(b) and 2(c) of this Standard;
 - (2) An identified overflow spillway and downstream route sufficiently stabilized to convey a 100-year critical storm event;
 - (3) A normal water elevation above the OHW of adjacent waterbodies or normal water level (NWL) where an OHW is not established; and
 - (4) Access for future maintenance.
- (k) Permanent stormwater quality management must be provided in accordance with the NPDES General Construction Permit No: MN R100001 (as amended).
- (l) Unless a municipality or the county have an approved LWP prescribing a minimum low floor elevation, any new residential, commercial, industrial and other habitable structures shall be constructed with the following low floor elevation:
- (1) In the case of a land-locked basin, the low floor elevation shall be the lesser of 3 feet above the surveyed basin overflow; or 3 feet above the high water level of the basin as determined from an estimate using the SHYM (See Scott WMO Standards Guidance), or 100-year back to back events, under full build-out conditions for the contributing watershed.
 - (2) Where the 100-year flood level has been established, low floor elevations shall be at least 1 foot above the 100-year flood level.

- (3) For public waters and public water wetlands [DNR protected water bodies] where the 100-year flood level has not been established, low floor elevations shall be at least 3 feet above the ordinary high water level (OHW).
- (4) In all other cases, the low floor elevation shall be at least 3 feet above the highest known water level.
- (5) All new structures must have a certificate of survey supplied by the applicant for the LGU or Scott WMO (if permitting has defaulted to the WMO) that clearly identifies the as-built low floor elevation and low entry elevations. Low floor elevations and low entry elevations must comply with the approved development plans, where applicable.

3. WAIVERS

- (a) Design for the 100-year actual storm event required per Paragraph 2(e) of this Standard may be waived for limited use, low maintenance road crossings.

4. EXHIBITS

LGUs shall require the submittal of exhibits with an application necessary for review and determination of compliance with this Standard.

5. MAINTENANCE

All stormwater management structures and facilities shall be maintained in perpetuity to assure that the structures and facilities function as originally designed. The responsibility for maintenance shall be assumed either by the city, township or county with jurisdiction over the structures and facilities, or by the applicant entering into a compliance agreement, such as a developers agreement, with the LGU.

6. EASEMENTS

The applicant shall establish, in a form acceptable to the LGU, temporary and perpetual easements, or dedicated outlots, for ponding, flowage and drainage purposes over all components of the stormwater management plans and stormwater management facilities, including but not limited to all wetlands, waterbodies, stormwater basins, ditches, including features that previously existed and new stormwater management facilities that are being newly constructed.. The easements, or outlots, shall include the right of reasonable access for inspection, monitoring, maintenance and enforcement purposes.

7. COVENANTS

The LGU may require that the land be subjected to restrictive covenants or a conservation easement, in form acceptable to the LGU, to prevent the future expansion of impervious surface and the loss of infiltration capacity.

8. EXCEPTIONS

No permit or stormwater management plan shall be required under this Standard for the following land disturbing activities:

- (a) Minor land disturbing activities such as home gardens, repairs and maintenance work, including reseeding or sodding as necessary.
- (b) Construction, installation and maintenance of individual sewage treatment systems.
- (c) Construction, installation and maintenance of public utility lines or individual service connections unless the activity disturbs more than one acre.
- (d) Construction of any structure or associated land disturbing activity on an individual parcel in a subdivision with a stormwater management plan approved by the LGU, so long as any land disturbing activity complies with the approved plan.
- (e) Development or redevelopment of, or construction of a structure on, an individual parcel with a land disturbing activity that does not cause off-site erosion, sedimentation, flooding or other damage.
- (f) Installation of any fence, sign, telephone or electric poles, or other kinds of posts or poles.
- (g) Emergency activity necessary to protect life or prevent substantial harm to persons or property.
- (h) Redevelopment projects are exempt from criteria in Paragraphs 2(b)(i.e., rate control in cities), 2(c)(i.e., rate control in unincorporated areas), and 2(k)(i.e., runoff volume controls) of this Standard. Note: for the purposes of this Standard if an activity creates more than 1 acre of new or additional impervious surface the activity is considered new development and the exception does not apply to the increased (new) impervious surface.
- (i) All land disturbing activities not required by this Standard to obtain a permit or have an approved stormwater management plan shall nevertheless be conducted in full compliance with Standard C.

E. .Standard E – EROSION AND SEDIMENT CONTROL

1. REGULATION

No person or political subdivision shall commence a land disturbing activity, unless specifically exempted by Paragraph 7 of this Standard below, without first obtaining a permit from a Local Unit of Government (LGU) or Scott WMO (if permitting has defaulted to the WMO) that incorporates and approves an erosion and sediment control plan for the activity, development or redevelopment.

2. CRITERIA

Erosion and sediment control plans and the land disturbing activity shall comply with the following criteria:

- (a) Erosion and sediment control measures shall be consistent with Best Management Practices (BMPs), and shall be sufficient to retain sediment on-site.
- (b) All erosion and sediment controls shall be installed on all down gradient perimeters before commencing the land disturbing activity, and shall not be removed without LGU approval or approval of a Certificate of Completion pursuant to Standard B paragraph 12.
- (c) When a proposed land disturbing activity is equal to or greater than 1 acre erosion and sediment control measures shall meet the requirements of the NPDES General Construction Permit No. MN R100001 issued by the Minnesota Pollution Control Agency, August 1 2013, as amended; except where more specific requirements are provided in paragraphs 2(d) and 2(e) of this Standard below.
- (d) If the activity is taking place on a site where the soils are currently disturbed (e.g. a tilled agricultural site that is being developed), areas that will not be disturbed as part of the development and areas that will not be disturbed according to the time frames and slopes specified in the NPDES General Construction permit Part IV, shall be seeded with temporary or permanent cover before commencing the proposed land disturbing activity.
- (e) Where five (5) or more acres of disturbed soil drain to a common location, a temporary (or permanent) sediment basin must be provided prior to the runoff leaving the site or entering surface waters. The basins must be designed and constructed according to the standards in the NPDES General Construction Permit Part III.C.
- (f) The permittee or applicant must ensure final stabilization of the site in accordance with the NPDES General Construction Permit requirements. The site will be considered as having

achieved final stabilization following submission of Certificate of Completion by the permittee or applicant, and inspection and approval by the LGU as specified in Standard B paragraph 12.

- (g) All on-site stormwater conveyance channels shall be designed and constructed to withstand the expected velocity of flow from a 10-year frequency storm without erosion.

3. EXHIBITS

LGUs or Scott WMO shall require the submittal of exhibits with an application necessary for review and determination of compliance with this Standard.

4. MAINTENANCE

The permittee shall be responsible for proper operation and maintenance of all erosion and sediment controls, and soil stabilization measures, in conformance with best management practices, and in conformance with the maintenance requirements in the NPDES General Construction Permit. The permittee or applicant is responsible for the operation and maintenance of temporary erosion prevention and sediment control BMPs for the duration of the construction work at the site. The permittee or applicant is responsible until another permittee or applicant has assumed control according to the LGU or Scott WMO (if permitting has defaulted to the WMO) over all areas of the site that have not been finally stabilized or the site has undergone final stabilization, and has received an approved Certificate of Completion in accordance with Standard B paragraph 12.

5. SECURITY

Any bond or other security required in accordance with Standard K shall be maintained until final soil stabilization and removal of erosion and sediment controls, and the payment of all fees and other amounts due the LGU.

6. EXCEPTIONS

No permit or erosion control plan shall be required under this Standard for the following land disturbing activities:

- (a) Minor land disturbing activities such as home gardens, repairs and maintenance work.
- (b) Construction, installation and maintenance of individual sewage treatment systems other than those on steep slopes, on riparian lots within a Shoreland District or in a bluff impact zone.
- (c) Construction, installation and maintenance of public utility lines or individual service connections unless the activity disturbs more than 1 acre, in which event Paragraph 7(d) of this Standard below shall apply.

- (d) A land disturbing activity that does not cause off-site erosion, sedimentation, flooding or other damage, and disturbs:
 - (1) In the Shoreland District, an area less than 10,000 square feet or less than 100 linear feet of shoreline; provided that the LGU has adopted an ordinance or procedure for requiring erosion prevention and sediment control BMPs with building permits in a manner consistent with this Standard; or
 - (2) Outside of the Shoreland District, an area of less than 1 acre provided that the LGU has adopted an ordinance or procedure for requiring erosion prevention and sediment control BMPs with building permits in a manner consistent with this Standard.
- (e) Installation of any fence, sign, telephone or electric poles, or other kinds of posts or poles.
- (f) Emergency activity necessary to protect life or prevent substantial harm to persons or property.
- (g) Minor wetland impacts that have received a “certificate of exemption or no loss” determination by the LGU administering the Wetland Conservation Act, as amended.
- (h) All maintenance, repair, resurfacing and reconditioning activities of existing road, bridge, and highway systems which do not involve land disturbing activities outside of the existing surfaced roadway.
- (i) Land disturbing activities associated with the construction of conservation practices by the SWCD or the Natural Resources Conservation Service (NRCS) provided that erosion prevention and sediment control practices are used in a manner consistent with this Standard.
- (j) All land disturbing activities not required by this Standard to obtain a permit or have an approved erosion and sediment control plan shall nevertheless be conducted in full compliance with Standard C.

F. STANDARD F – FLOODPLAIN ALTERATION

1. REGULATION

No person or political subdivision shall alter or fill land, or build a structure, below the 100-year critical flood elevation of any public waters, public waters wetland or other wetland without first obtaining a permit from the appropriate LGU.

2. CRITERIA

- (a) Floodplain alteration or filling shall not cause a net decrease in flood storage capacity below the projected 100-year critical flood elevation unless it is shown that the proposed alteration or filling, together with the alteration or filling of all other land on the affected reach of the waterbody to the same degree of encroachment as proposed by the applicant, will not cause high water or aggravate flooding on other land and will not unduly restrict flood flows.
- (b) Where 100-year flood evaluation have been established all new structures shall be constructed with the low floor consistent with the minimum elevations the low floor of structures in Standard D 3(l). Certificates of survey identifying the as-built low floor elevations and low entry elevations must be supplied to the LGU or Scott WMO (if permitting has defaulted to the WMO).
- (c) A land disturbing activity within a floodplain may require a permit under Standards D and E.
- (d) An activity that alters or fills a wetland within a floodplain may require a permit under Standard G.

3. EXHIBITS

LGUs shall require the submittal of exhibits with an application necessary for review and determination of compliance with this Standard.

4. EXCEPTIONS

- (a) If a municipality or county has adopted a floodplain ordinance, which prescribes an allowable degree of floodplain encroachment, the applicable ordinance shall govern the allowable degree of encroachment and no permit will be required under this Standard F.
- (b) A permit is not required, and criteria 2(a) does not apply for fill amounts less than 40 cubic yards in the Minnesota River Floodfringe, or for less than 20 cubic yards in other National Flood Insurance Program Floodfringe areas, and other floodplain areas in the SWMO. This does not provide an exception to Minnesota Department of Natural Resources, or National Flood Insurance Program requirements, or local community requirements that apply in areas covered by the National Flood Insurance Program.

G. STANDARD G – WETLANDS

1. REGULATION

- (a) No person or political subdivision shall drain, fill, excavate or otherwise alter a wetland or public waters wetland without first obtaining the approval of a wetland replacement plan from the local government unit with jurisdiction over the activity. The local government unit for WCA may or may not be the same as the LGU for the implementation of the local water plan.
- (b) For any parcel created or redeveloped after the effective date of this Standard, a buffer shall be maintained around the perimeter of all wetlands, major watercourses (as shown on Map 2), and public waters wetlands. The buffer provisions of this Standard shall not apply to any parcel of record as of the date of this Standard until such parcel is subdivided or redeveloped and as long as the lots created are eligible for Green Acres or Agricultural Preserve.
- (c) The buffer portions of this Standard (paragraph 1(b)) do not apply to any wetland or public waters wetland with a surface area equal to or less than the area of wetland impact allowed without replacement as de minimus under the Wetland Conservation Act (WCA), and to those portions of wetlands that will be filled under approved wetland replacement plans per the Wetland Conservation Act (WCA).

2. CRITERIA

- (a) Any drainage, filling, excavation or other alteration of a public waters wetland or wetland shall be conducted in compliance with Minnesota Statutes, section 103G.245, the WCA, and regulations adopted thereunder.
- (b) A public waters wetland or wetland may be used for stormwater storage and treatment only if the use will not adversely affect the function and public value of the wetland as determined by the local government unit.
- (c) Wetland replacement/mitigation siting shall prioritize on-site mitigation, and shall follow the process set forth in Mn. Rule Chapter 8420.0543.
- (d) A wetlands functional assessment for vegetative diversity will be completed with each wetland, and public waters wetlands, delineated for a project and buffers established according to the following table. The functional assessment and wetland rankings will be determined using the Minnesota Routine Assessment Method version 3.0 (MnRAM 3.0, as amended). Rankings are summarized as follows.

Buffer Requirement	Exceptional	High	Medium	Low	Major Watercourse	Stormwater Ponds
Average Buffer Width	65 feet	50 feet	35 feet	25 feet	35 feet	0
Minimum Buffer Width	25 feet	25 feet	25 feet	25 feet	25 feet	0*

**Must have a building setback of 10 feet from delineated edge of wetland and elevated as necessary to meet provisions of paragraph 3(1) of Standard D.*

“Exceptional” Wetland – are wetlands assigned the exceptional rating using MnRAM 3.0 for evaluating wetland functions. These wetlands are most susceptible to human impacts, are most unique, have the highest community resources significance such as rare species habitats, and similar characteristics.

“High” Wetland – are wetlands assigned the high rating using MnRAM 3.0 for evaluating wetland functions. These wetlands are relatively undisturbed but exhibit evidence of more disturbance or degradation than Exceptional wetlands. High wetlands have conditions and functions that are susceptible to human impacts, are connected to other wetlands or watercourses, and may contain locally significant or rare wetland types.

“Moderate” Wetlands – are wetlands assigned a moderate rating using MnRAM 3.0 for evaluating wetland functions. These wetlands typically provide a diversity of habitats, and are connected to other wetland or upland habitats to provide wildlife habitat.

“Low” Wetlands – are wetlands assigned a low rating using the MnRAM 3.0 for evaluating wetland functions. These wetlands tend to be less susceptible to further impacts than the other wetland management classifications. They also have low diversity and connectivity to other wetlands and watercourses.

Stormwater Ponds – are designated strictly for treating and retaining stormwater.

- (e) All structures shall have a minimum set-back of 35 feet from the delineated edge of wetlands and public waters wetlands.
- (f) The first 25 feet of buffer as measured from the wetland or public waters wetland cannot be disturbed during project construction (i.e., cleared or graded, except for temporary disturbances for public roads and utility construction) and must be protected from disturbance with temporary fencing prior to construction. Vegetation can be replaced and site soils preparation work completed within this first 25 feet if necessary to establish acceptable vegetation in accordance with Paragraph 2(h) of this Standard.
- (g) Buffers shall apply whether or not the wetland or public waters wetland is on the same parcel as a proposed development. An applicant is required to delineate the boundary for any wetland or

public waters wetland on the project land. An applicant shall not be required to delineate wetlands on adjacent property, but must review available information to estimate the wetland boundary.

(h) Buffer vegetation shall be established and maintained as follows:

- (1) Where acceptable natural vegetation exists in buffer areas, the retention of such vegetation in an undisturbed state is required unless an applicant receives approval to replace such vegetation. A buffer has acceptable natural vegetation if it:
 - (aa) Has a continuous, dense layer of perennial grasses that has been uncultivated or unbroken for at least 5 consecutive years; or
 - (bb) Has an overstory of trees and/or shrubs that has been uncultivated or unbroken for at least 5 consecutive years;
 - (cc) Contains a mixture of the plant communities described in Paragraphs 2(h)(1)(aa) and 2(h)(1)(bb) of this Standard above that has been uncultivated or unbroken for at least 5 years; or
 - (dd) Photographic evidence of the buffer condition must be provided for review.
- (2) Notwithstanding the performance standards set forth in Paragraph 2(h)(1) of this Standard, and LGU may determine existing buffer vegetation unacceptable if:
 - (aa) It is composed of undesirable plant species including but not limited to common buckthorn, purple loosestrife, leafy spurge or noxious weeds; or
 - (bb) It has topography that tends to channelize the flow of runoff; or
 - (cc) For some other reason it is unlikely to retain nutrients and sediment.
- (3) Where buffers are not vegetated or have been cultivated or otherwise disturbed within 5 years of the permit application, such areas shall be replanted and maintained. The buffer plantings must be identified on the permit application. The buffer landscaping shall comply with the following standards:
 - (aa) Buffers shall be planted with a seed mix approved by MnDOT, BWSR, NRCS or SWCD, with the exception of a one-time planting with an annual nurse or cover crop such as oats or rye.
 - (bb) The seed mix shall be broadcast according to MnDOT, BWSR, NRCS or SWCD specifications of the selected mix. The annual nurse cover crop shall be applied at a minimum rate of 30 pounds per acre. The MnDOT, BWSR, or NRCS seed mix

selected for permanent cover shall be appropriate for the soil site conditions and free of invasive species.

- (cc) Native shrubs may be substituted for native forbs. All substitutions must be approved by the LGU. Such shrubs may be bare root seedlings and shall be planted at a minimum rate of 60 plants per acre. Shrubs shall be distributed so as to provide a natural appearance and shall not be planted in rows.
 - (dd) Any groundcover or shrub plantings installed within the buffer are independent of any landscaping required elsewhere by the LGU.
 - (ee) Grasses and forbs shall be seeded or planted using a method of application that shall be approved by the LGU prior to planting or seeding.
 - (ff) No fertilizer shall be used in establishing new buffers, except on highly disturbed sites when necessary to establish acceptable buffer vegetation and then limited to amounts indicated by an accredited soil testing laboratory.
 - (gg) All seeded areas shall be mulched immediately with clean straw at a rate of 1.5 tons per acre or as specified by the appropriate agency specifications for the seed mix being used. Mulch shall be anchored with a disk or tackifier.
 - (hh) Buffers (both natural and created) shall be protected by erosion and sediment control measures during construction in accordance with Standard E. The erosion and sediment control measures shall remain in place until the area crop is established.
- (4) Buffer vegetation shall be established and maintained in accordance with the requirements found in this Paragraph 2(h) of this Standard. During the first 2 full growing seasons, the owner must replant any buffer vegetation that does not survive. The owner shall be responsible for reseeding/or replanting if the buffer changes at any time through human intervention or activities. At a minimum the buffer must be maintained as a “no mow” area.
- (i) When a buffer is required the applicant shall, as a condition to issuance of a permit:
- (1) Submit to the LGU or Scott WMO (if permitting has defaulted to the WMO) for its approval a conservation easement for protection of approved buffers, or include the buffer in a dedicated outlot as part of platting and subdivision approval. The easement shall describe the boundaries of the wetland or public waters wetland and buffer, identify the monuments and monument locations, and prohibit any the alterations set forth in Paragraph

2(j) of this Standard below and the removal of the buffer monuments within the buffer, wetland, or public waters wetland. Outlot descriptions shall provide for an equivalent level of protection of the buffer and prohibit any alterations set forth in Paragraph 2(j) of this Standard below.

- (2) File the approved easement for record and submit evidence thereof to the LGU or Scott WMO (if permitting has defaulted to the WMO), or complete preliminary and final plats including dedicated outlot(s); and
 - (3) Install the monumentation required by Paragraph 2(l) of this Standard below.
- (j) Subject to Paragraph 2(k) of this Standard below, alterations including building, storage, paving, mowing, plowing, introduction of noxious vegetation, cutting, dredging, filling, mining, dumping, grazing livestock, agricultural production, yard waste disposal or fertilizer application, are prohibited within any buffer. Noxious vegetation, such as European buckthorn, purple loosestrife and reed canary grass, may be removed. Alterations would not include plantings that enhance the natural vegetation or selective clearing or pruning of trees or vegetation that are dead, diseased or pose similar hazards.
- (k) The following activities shall be permitted with any buffer, and shall not constitute prohibited alterations under Paragraph 2(j) of this Standard above:
- (1) Use and maintenance of an unimproved access strip through the buffer, not more than 20 feet in width, for recreational access to the watercourse or wetland and the exercise of riparian rights;
 - (2) Placement, maintenance, repair or replacement of public roads, and utility and drainage systems that exist on creation of the buffer or are required to comply with any subdivision approval or building permit obtained from the municipality or county, so long as any adverse impacts of public road, utility and drainage systems on the function of the buffer have been avoided or minimized to the extent practical;
 - (3) Construction, maintenance, repair, reconstruction or replacement of existing and future public roads within a buffer, so long as any adverse impacts of the road on the function of the buffer have been avoided or minimized to the extent practical.
 - (4) Individual Sewage Treatment Systems (ISTS) may be constructed within a buffer but outside the 35 foot structure setback as long as the vegetation growing on the system is maintained in accordance with Paragraph 2(h) of this Standard, and the system otherwise meets County and State rules for ISTS systems.

- (5) Clearing, grading and seeding is allowed if part of an approved Wetland Replacement Plan.
- (l) Buffers shall be monumented to clearly designate the boundaries of all buffers within new residential developments. A monument shall be required at each parcel line where it crosses a buffer strip and shall have a maximum spacing of 300 feet along the edge of the buffer. Additional monuments shall be placed as necessary to accurately define the edge of the buffer. A monument shall consist of a post and a buffer sign. The signs shall be obtained from the LGU and includes warnings about fines for disturbing and/or developing buffers. The signs shall be a minimum of 5 inches wide by 7 inches vertical, have a brown field with white lettering, and shall be securely mounted on a post (either wood or metal is acceptable) to a minimum height of 4 feet above grade.
- (m) Other activities which would change the character of a wetland shall not diminish the quantity, quality or biological diversity of the wetland.
- (n) A land disturbing activity within a wetland may require a permit under Standards D and E.
- (o) An activity within a wetland that alters or fills a floodplain may require a permit under Standard F.

3. LOCAL GOVERNMENT UNIT

The Scott WMO intends that LGUs administer the Wetland Conservation Act, unless a particular city, township or county has elected not to assume that role in its jurisdictional area. In these cases the Scott WMO may serve as the local governmental unit (LGU) for administration. The Mn/DOT is the LGU for WCA on areas within the Mn/DOT right-of-way.

H. STANDARD H - BRIDGE AND CULVERT CROSSINGS

1. REGULATION

No person or political subdivision shall construct, improve, repair or alter a driveway, road or utility across a watercourse with a tributary area in excess of 100 acres without first obtaining a permit from the appropriate LGU or the Scott WMO (if permitting has defaulted to the WMO).

2. CRITERIA

Crossings shall:

- (a) Retain adequate hydraulic capacity.
- (b) Retain adequate navigational capacity.
- (c) Not adversely affect water quality.
- (d) Represent the "minimal impact" solution to a specific need with respect to all reasonable alternatives.
- (e) Allow for future erosion, scour, and sedimentation considerations.
- (f) New road construction shall meet State and Federal Guidelines for freeboard and overtopping by flood events.
- (g) Require a permit under Standards D and E if part of a land disturbing activity or subdivision.

3. EXHIBITS

LGUs or the Scott WMO (if permitting has defaulted to the WMO) shall require the submittal of exhibits with an application necessary for review and determination of compliance with this Standard.

4. MAINTENANCE

- (a) The maintenance, reconstruction and stabilization of any public crossing shall be the responsibility of the political subdivision with jurisdiction over the crossing.
- (b) The maintenance, reconstruction and stabilization of any private crossing shall be the responsibility of the owner of the crossing.
- (c) As a condition to the approval of a permit under this Standard, the LGU or the Scott WMO (if

permitting has defaulted to the WMO) may require the applicant and owner to enter into a compliance agreement with the LGU or WMO.

I. STANDARD I – DRAINAGE ALTERATIONS

1. REGULATION

No person or political subdivision shall artificially drain surface water, nor obstruct or redirect the natural flow of runoff where the drainage area exceeds 50 acres, so as to affect a drainage system established under Minnesota Statutes, Chapter 103E, or harm the public health, safety and general welfare of the Scott WMO, without first obtaining a permit from the appropriate LGU or the Scott WMO (if permitting has defaulted to the WMO).

2. CRITERIA

The applicant for a drainage alteration shall:

- (a) Describe the overall environmental impact of the proposed drainage alteration and demonstrate that:
 - (1) There is a reasonable necessity for such drainage alteration;
 - (2) Reasonable care has been taken to avoid unnecessary injury to upstream and downstream land;
 - (3) The utility or benefit accruing to the land on which the drainage will be altered reasonably outweighs the gravity of the harm resulting to the land receiving the burden;
 - (4) That downstream impacts have been controlled or mitigated according to Standard D paragraph 2(d);
 - (5) The drainage alteration is being accomplished by reasonably improving and aiding the normal and natural system of drainage according to its reasonable carrying capacity, or in the absence of a practicable natural drain, a reasonable and feasible artificial drainage system is being adopted.
- (b) Provide a hydraulic design which complies with Standards F and G, and if the alteration involves a landlocked basin, the alteration must comply with Standard D paragraph 2(i) for outlets from landlocked basins.
- (c) Provide a stable channel and outfall.
- (d) Obtain a permit under Standards D and E if the drainage alteration is part of a land disturbing activity or a development or redevelopment of land.

3. EXHIBITS

LGUs or the Scott WMO (if permitting has defaulted to the WMO) shall require the submittal of exhibits with an application necessary for review and determination of compliance with this Standard.

4. EXCEPTIONS

- (a) No permit shall be required under this Standard for the alteration of drainage in connection with the use of land for agricultural activities.
- (b) The LGU or the Scott WMO (if permitting has defaulted to the WMO) may waive the requirement of Paragraph 2(a)(4) of this Standard above if the applicant submits easements or other documentation in form acceptable to the LGU or Scott WMO (if permitting has defaulted to the WMO) evidencing the consent of the owner of any burdened land to the proposed alteration. Such easements or other documentation shall be filed for record and evidence thereof submitted to the LGU or Scott WMO (if permitting has defaulted to the WMO).
- (c) All drainage alterations not required by this Standard to obtain a permit shall nevertheless be conducted in full compliance with Standard C.

ATTACHMENT 1: SIMPLIFIED HYDROLOGIC YIELD METHOD

Determining Flood Elevations of Landlocked Basins

Control of building decisions is a major responsibility of local governments. One of the most difficult aspects of this responsibility is making decisions regarding building adjacent to landlocked lakes and ponds.

In the first phases of rural development, development occurs preferentially in higher, well-drained areas. The last-developed areas with many wetlands typically have to maximize land use to be economically feasible, and applicants are often reluctant to keep homes above the run-out elevation of a landlocked area. Because local governments do not have the time or resources to analyze the flood level of each landlocked ponding area, they need a conservative, approximate method that is easy to use.

The following sections describe some examples of approaches to this problem and suggest a method that is based on hydrologic principles but is simple enough to use for day-to-day development reviews.

Full Watershed Yield and Groundwater Simulation

The most complete and scientific approach to the problem is to prepare a long-term watershed yield and groundwater model. Such a model requires the input of meteorological and watershed information, which is then used to determine the total amount of water produced by the watershed (yield). The predicted yield is then input to a groundwater model that simulates the pond's seepage as a function of lake level and climate. If sufficient data on lake levels are available for calibration, this approach can be reasonably accurate. Such models were used by the Federal Emergency Management Agency (FEMA) to determine flood levels of Great Salt Lake, Utah and Devils Lake, North Dakota. In Minnesota this type of model was used by FEMA for Big Marine Lake and Prior Lake. The use of a full yield model is warranted when damages could be high, the water body is large, etc. Since this is generally not the case for most landlocked basins, other methods have been used.

The model described above can be simplified by using "representative" runoff years and by simplifying the land use and groundwater yield models but even at this level, a customized model is too expensive and time-consuming for development review purposes.

Back-to-Back 100-Year 24-Hour Rainfall Events

This method is sometimes used because it is simple and does not require calculation of all the other parameters such as seepage to groundwater. It acknowledges the fact that the critical rainfall amount for flooding of landlocked basins is greater than the rainfall from a single one-day storm; a longer-duration event will almost always be critical for a landlocked basin. However, simply doubling the storm rainfall is not a statistically valid way to analyze the problem since the probability of this event occurring is much less than 1 percent. A simple doubling of the rainfall amount may be difficult to defend if challenged.

Ten-Day and Thirty-Day Snowmelt Event or a Thirty-Day Combined Rainfall/Runoff Event

These methods are an improvement over using the one-day storm because they are statistically based and are more representative of long-term flood events. The problem with these methods is that the critical event could be of much longer duration than either ten or thirty days. The critical event could be months or years long. Data on 30-day runoff are relatively scarce, as well.

DNR's Ordinary High Water (OHW) Elevation

The OHW is the elevation at which aquatic vegetation transitions to upland vegetation. While the OHW is used as a management tool by the MDNR (e.g., for shoreland setbacks), even the MDNR does not believe that it should be used for setting building elevations. MDNR staff acknowledge that the OHW is only an indication of past high water; they believe that the OHW is often equivalent to approximately the 15-year flood level.

No Building Below the Runout Elevation

This approach to setting building elevations is certainly conservative and will produce safe building decisions but it may result in very large amounts of land being unbuildable. When this method is used, some freeboard should be reserved above the runout because overflow, if it occurs, will require some additional driving head before the water level stabilizes. Where flow paths are poorly defined, this may be well over a foot of flow depth.

In some urbanizing communities this policy is viewed as a temporary situation until an outlet can be constructed. However, many basins will have low housing density and relatively high runout elevations. Under these circumstances, it is unlikely that outlets will ever be provided for most landlocked basins. Nonetheless, this may be an acceptable approach for some communities, especially if land values are low.

The Simplified Hydrologic Yield Method

The simplified method is derived from watershed yield models completed in the Minneapolis-St. Paul metro region. It uses those study to make an estimate of the amount of runoff generated during the 100-year annual runoff event. Hence, it is a single-event model, but based on a longer-duration event than the methods discussed earlier. The simplified method calculates the 100-year annual inflow from all parts of the watershed, including the water surface, as follows:

	<u>100-Year Annual Inflow</u>
Impervious Surfaces	32 inches
Turfed Surfaces	18 inches
Water Surfaces	12 inches

Note that these amounts are taken from the Washington County flood insurance study data. Numbers for other communities in the Twin Cities metropolitan area might be slightly different. The “turfed” classification includes vegetated areas that have evapotranspiration and soil storage that is available to plant roots; the value shown is for till (heavier) soils; outwash soils would be slightly different.

In calculating the flood level, the most conservative assumption would be to neglect outflow and simply use the 100-year inflow from the watershed and assume that it has to be stored in the basin. This produces very high flood levels. However, water does leave the basin. Evaporation from the pond and land surfaces are included in the inflow figures; the greatest missing component is seepage or infiltration from the pond. For a landlocked pond which normally contains water, the inflow and seepage are in long-

term equilibrium. Therefore, we know that the long-term average infiltration equals the average inflow from the watershed. According to the simplified method, the average inflow from the watershed to the pond is as follows:

	Average Annual Inflow (equals assumed average outflow)
Impervious Surfaces	16 inches
Turfed Surfaces	8 inches
Water Surfaces	-6 inches

The runoff from water surfaces is negative because, in the Twin Cities metropolitan area, precipitation is less than average water surface evaporation on an annual basis, so water surfaces cause a reduction in total watershed yield (this is not the case in northern Minnesota).

From a theoretical standpoint, the 100-year storage should be calculated by subtracting the 100-year seepage from the 100-year watershed yield. Of course, we don't know the seepage under the 100-year high water condition, but we can conservatively substitute the average seepage, which we just noted is equal to the average inflow. The net 100-year annual storage amounts are then as follows:

	Net 100-Year Annual Excess
Impervious Surfaces	$(32-16) = 16$ inches
Turfed Surfaces	$(18-8) = 10$ inches
Water Surfaces	$(12-(-6)) = 18$ inches

The resulting net runoff volume must be stored above the normal water level of the landlocked water body. It is important to exercise care in setting the assumed normal water level. This is true for any of the methods discussed. Since the water level can fluctuate greatly, it is difficult to determine the correct "normal" water elevation. It is especially difficult for water bodies for which there is little or no water level data. The established normal water level of a landlocked basin must be based on available water level records and topographic maps and should be carefully reviewed by the permitting jurisdiction. If the OHW is available, it can be used as a guide to the upper level of the "normal" water level.

The typical strategy for use of this method is to apply it unless the applicant is willing to pay for a more detailed analysis. A more detailed analysis would require calculation of many years of watershed yield numbers. It would also require the placement of observation wells to determine groundwater flow patterns. Based on the groundwater system, a transient groundwater model would be prepared that would be linked to the watershed yield model. Because of the additional expense, permit applicants almost always use the approximate method to determine flood elevations.

The method is based on results of hydrologic models. For example, the 100-year runoff amounts for water and turfed areas are similar to results from the Big Marine Lake Flood Level study for years 1965 and 1975, which had 44.44 inches and 41.68 inches of precipitation, respectively. The average runoff amounts are similar to the average yields determined in the Prior Lake, Big Marine Lake, Minneapolis Chain of Lakes and the Lake Minnetonka watershed yield studies.

The simplified method results in flood elevations which are higher than the 100-year 10-day snowmelt event (assuming the basin does not overflow in the 100-year 10-day snowmelt event), but possibly lower than the runout elevation.

There are benefits to using the simplified method. Using this method, the permitting jurisdiction has reasonable assurance that buildings will be constructed outside of flood plains without resorting to requiring that buildings be above the runout elevation. The method is simple; only future land use data and stage/area/storage information is required to determine the 100-year flood elevation. Although data collection is not required, any information about historical water levels is useful.

There are also limitations to the use of the simplified method. It works best with single watersheds that hold water. Dry depressions almost certainly experience seepage that is greater than what is built into the method. Another drawback is that the simplified method uses only the one year event; the critical event could be of longer duration than one year. In areas with many landlocked ponds, the method can predict overflow from one pond to another; in this case the conservatism of the method can multiply as more upstream areas become tributary. If some of these upstream watersheds contain dry depressions, it could add to the inaccuracy in the flood level determination. Another problem is high seepage areas, especially those with karst hydrology. In one case the observed flood level was 20 feet below the predicted flood level. High seepage areas contain water but exhibit excessive seepage; the simplified method does not take this additional seepage into account. Bank storage is not taken into account in the simplified method. It is possible that a basin's effective storage volume could be much greater at a particular elevation if bank storage was included in the storage volume computation.

Example Problem and Comparison with Other Methods

Given a landlocked watershed with a 20-acre pond at about Elevation 1000. The tributary area is 400 acres and the runout (overflow) level is Elevation 1030. The water surface area increases from 20 acres at Elevation 1000 to 50 acres at 1030. The stage-storage curve is zero storage at Elevation 1000 to about 1000 acre-feet at 1030.

The proposed land use in the watershed is low density residential one-acre lots with approximately 20% impervious surface. Based on average soil conditions and including the pond and impervious areas, the weighted Curve Number would be about 75.

The land use for the simplified method is:

Water surface	20 acres x 18 inches of excess runoff	= 30 acre-feet
Impervious surface	80 acres x 16 inches of excess runoff	= 107 acre-feet
Turfed surface	300 acres x 10 inches of excess runoff	= 250 acre feet

Total runoff to be stored (yield less assumed seepage) = 387 acre-feet

Results of different runoff calculation methods are described in Table 1.

Table 1
Comparison of Flood Level Calculations
For Sample Landlocked Pond

Method	Runoff	Flood Level	Minimum Building Elevation	Acres of Unbuildable Land*
No building below runout level	Not required to be calculated. Flood level would require about 1054 acre-feet or 31.6 inches of runoff.	1030+	1031+	30+
100-year one-day rainstorm (6 inches)	3.4 inches or 112 acre-feet	1005	1006	5
100-year 10-day rainstorm (10.8 inches)	5.27 inches or 176 acre-feet	1007.5	1008.5	7
100-year 10-day runoff	7.2 inches or 240 acre-feet	1010	1011	9.2
30-day runoff event	9 inches or 300 acre-feet	1012	1013	11
Two 100-year 1-day rainstorms (12 inches)	8.76 inches or 291 acre-feet	1012	1013	11
Simplified method	387 acre-feet	1015	1016	14

* Area of basin below minimum building elevation minus normal lake area.


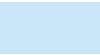

MAP 1: Bluff Overlay District of the Scott WMO

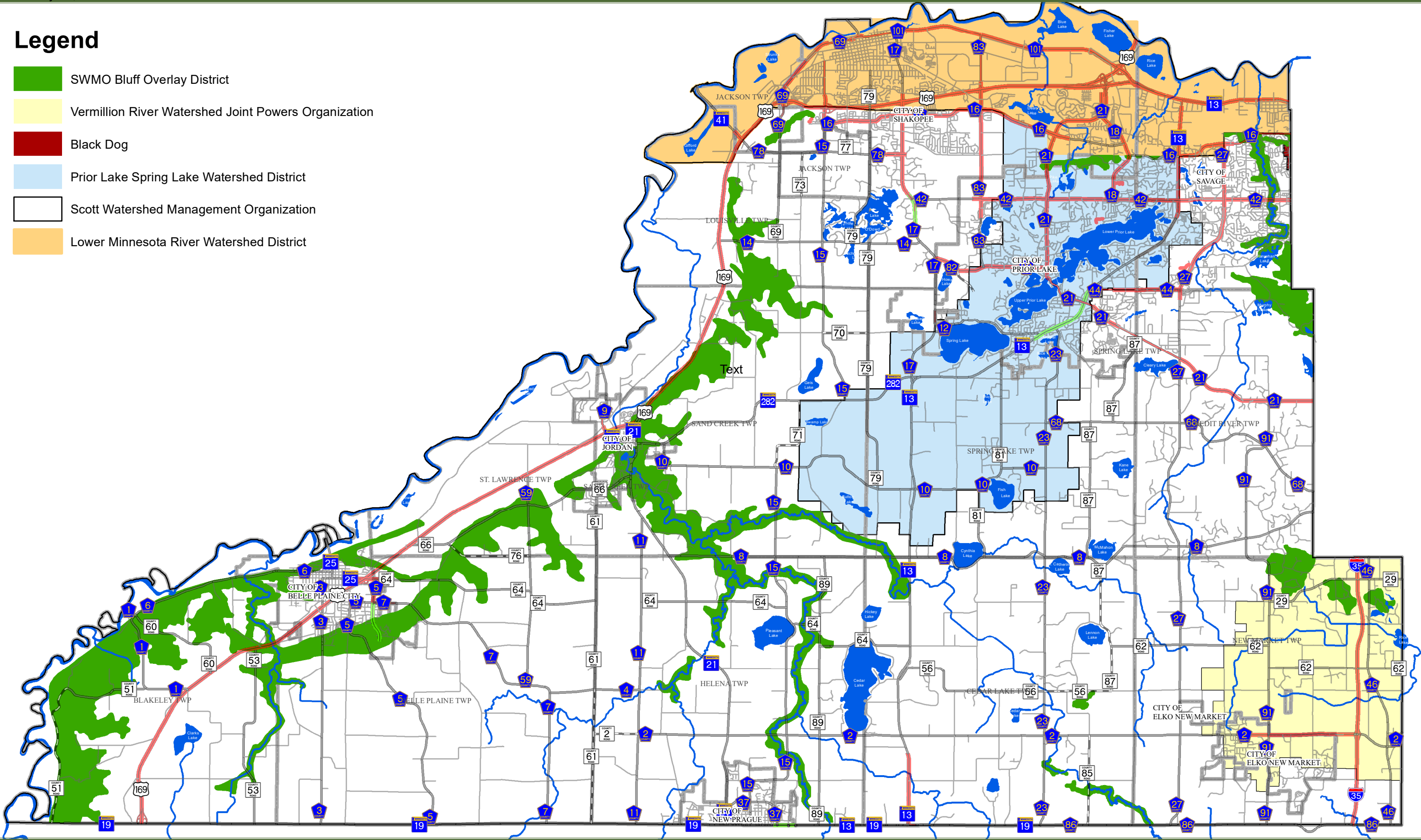
Date: July 18, 2018

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information, and data located in various city, county, and state offices, and other sources affecting the area shown, and is to be used for reference purposes only. Scott County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact the Scott County's Surveyors Office.



Legend

-  SWMO Bluff Overlay District
-  Vermillion River Watershed Joint Powers Organization
-  Black Dog
-  Prior Lake Spring Lake Watershed District
-  Scott Watershed Management Organization
-  Lower Minnesota River Watershed District



APPENDIX E

(2018 Conservation Practice Financial Assistance Program Policy Manual (PPM))

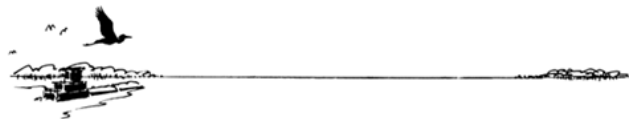
2018 CONSERVATION PRACTICE FINANCIAL ASSISTANCE PROGRAM POLICY MANUAL



PRIOR LAKE – SPRING LAKE
WATERSHED DISTRICT



Lower Minnesota River Watershed District



OVERVIEW

The Scott Soil and Water Conservation District (District) operates a financial assistance program to assist landowners, occupiers, citizen groups and local units of government implement conservation practices that protect and preserve soil, water and related natural resources in Scott County.

Funding for the Conservation Practice Financial Assistance Program (CPFAP) is provided through partnerships with local water management agencies, including the Scott Watershed Management Organization (SWMO), Prior Lake spring Lake Watershed District (PLSLWD), Vermillion River Watershed Joint Powers Organization (VRWJPO), and Lower Minnesota River Watershed District, depending on location. Funding from these partner agencies is provided for both technical assistance (staff times, primarily) and project implementation. The District also contributes funding through various grants it receives. There are two types of funding assistance provided through the program, including cost share and incentives. Within the Scott SWMO, the CPFAP is referred to as its Technical Assistance and Cost Share, or TACS, program.

Requests for financial assistance are made via an application process, and are subject to approval by the approving authority, which is generally the District Board of Supervisors, but in certain cases may be the local water management agency board or administrator. Generally, decisions to approve an application are based on the proposed project's feasibility, cost effectiveness, and overall public value.

This Policy and Procedures Manual, hereafter referred to as the "Docket", describes the policies and procedures associated with the program's application and approval process. It also lists the specific conservation practices eligible for financial assistance, along with maximum funding limits, conditions and criteria associated with each specific practice.

This Docket consists of three sections: Program Provisions, General Conservation Practice Provisions, and Specific Conservation Practice Provisions. The Program and General Conservation Practice Provisions list the requirements that are applicable to all or multiple practices. The Specific Provisions list the payment method, rates and limits, practice lifespan, and specific provisions for each conservation practice.

In certain instances, policies and procedures differ between the District and local water management agencies, as well as between local water management agencies themselves. These differences, where they exist, are described in Appendix A. Where policies and procedures conflict, the stricter is always observed.

PROGRAM PROVISIONS

The following provisions are requirements for cost share funding under this program.

ELIGIBILITY:

1. Financial payments may only be authorized for practices listed in this Docket. Non-docket practices required for the implementation of a docket practice shall be considered components of and subsidiary to the docket practice. Conservation payments for components will be included with the docket practice.
2. Financial assistance is authorized for conservation practices that:
 - a. Are designed and constructed following the contents of appropriate and most current technical standards, including but not limited to: the NRCS Field Office Technical Guide, MPCA Stormwater Manual, MPCA Protecting Water Quality in Urban Areas, NPDES General Stormwater Permit for Construction Activity, Minnesota Urban Small Sites BMP Manual, MDA Agricultural BMP Handbook for Minnesota, or other applicable local, state and federal regulations and standards which are consistent with this Docket.
 - b. Meet the general and specific conservation practice provisions for each practice included in the docket.
 - c. Except as otherwise noted, provide documentable environmental benefits, including but not limited to nutrient, sediment, and runoff volume reductions, from the benchmark condition.
 - d. Do not address erosion resulting from the direct impacts of development, unless the development occurred prior to applicable standards, such as NPDES permitting or local municipal or water management agency rules.
3. Financial assistance may be authorized for repairs to existing practices if financial assistance:
 - a. Was not previously provided for the project; or
 - b. Was provided but the project is beyond the contract term and the risk of failure poses significant threat to water quality or infrastructure; or
 - c. Was provided and the project is within the contract term, but damage was caused by an act of God and the risk of failure poses significant threat to water quality or infrastructure.
4. A contract may be amended to cover costs associated with re-grading, re-seeding and re-mulching a project that has experienced erosion prior to final certification, as determined reasonable and necessary by the authorized District Technical Representative. The cost share rate shall not exceed the rate set in the approved contract. Such costs may be covered through an amendment to the cost share agreement.
5. Cost share may be authorized for expenses associated with installation of more durable erosion control measures, including but not limited to substituting crimped mulch with erosion control blanket, as determined reasonable and cost effective by the authorized Technical Representative.
6. Applicants who commence construction of a practice before an application for financial assistance is officially approved do so at their own risk and are not guaranteed funding. Work that starts before the applicant signs an official application is ineligible for financial assistance for that practice. Work that starts after the application is signed but before it is officially approved is eligible for reimbursement provided: a) an official waiver form is signed by the applicant before any work commences; and b) the contract is officially approved.
7. The approving authority may require an applicant to implement additional practices as a condition of financial assistance if the additional practice or practices are important to ensuring the integrity and/or

benefit of the original practice. Financial assistance for projects on parcels that are not compliant with federal, state or local rules or regulations may be denied.

PAYMENT METHODS:

8. Two forms of financial assistance methods are authorized under the TACS program: incentives and cost share.
 - a. Incentives:
 - i. One-time – Payment is made upon certification of practice implementation.
 - ii. Annual – Payment is calculated for a specified number of years. Payment is made in two to four installments, the first of which is made upon certification of installation and any subsequent installments are made upon certification of establishment (typically after one full growing season). A single payment may be authorized for annual incentive payment projects if the site is already established, as certified by the District Technical representative
 - b. Cost Share: Cost share is a partial reimbursement to a cooperator to help offset the construction costs associated with implementing a practice. The maximum cost share rate is listed for each practice and shall be considered the maximum rate of actual construction costs or the estimated cost (whichever is less) of implementing the practice.
 - i. The maximum cost share rate for municipalities cannot exceed 50%.
 - ii. Individuals with the appropriate technical approval authority must be involved in the preparation of cost estimates, either as preparer or reviewer.
9. The cost share and incentive rates listed in this docket are maximums. The approving authority has discretion to reduce the maximum rate depending on public benefit. The total financial assistance paid to an applicant shall not exceed the maximum cost share or incentive rate allowed by the funding source's governing policies. The maximum local financial assistance paid to an applicant shall not exceed the maximum cost share or incentive rate listed in this Docket. Other program rules regarding maximum payment rates and other limitations shall be observed. the
10. Federal, state and other non-local sources of funding shall be used to the maximum extent practicable; similarly, local funds shall be used to piggy-back other funding sources to the maximum extent practicable.

Some conservation practices require the applicant to apply for cost share from other sources (e.g. EQIP) before being eligible to receive local financial assistance. An applicant may apply for a waiver from this provision using a form provided by the District. The District Board may approve a waiver request upon determination that compliance with this provision would delay project construction, resulting in a significant increase in risk to public health, safety or the environment that could otherwise be avoided. Approved waiver requests shall be reported to the WPC.

11. The amount to be cost shared will be limited to that required for the practice to be installed. When additional or alternative work or material is performed or used at the landowner's request, any costs greater than the minimum required for the practice will be the responsibility of the owner. Maximum rates for in-kind labor costs shall be consistent with the most current Iowa Custom Rate Survey. Higher rates may be allowed in special circumstances, as determined necessary and reasonable by the District.
12. Practices that cost share on seeding will include all associated costs with implementing the seed plan.

APPROVAL PROCESS:

13. Completed applications shall be presented to the District Board for their formal consideration. Action to approve, approve with modification, or deny shall be documented in the meeting minutes. The District Director is authorized to sign and date application approved by the Board.
14. Approvals of applications for cost share are subject to the availability of funding.
15. The District shall send a letter notifying applicants of action taken by the approving authority. The letter shall, at a minimum, include a copy of the signed and dated contract and explain the next steps. Letters shall also be sent when action by the appropriate approving authority is taken to cancel a contract. A letter is not required for contract amendments.
16. Contracts (i.e. approved applications) exceeding \$20,000 in WMO funds shall be recorded on the property title at the county recorder's office. Recording of the contract notifies subsequent buyers of the existence of the practice or practices on the property and their obligation to maintain these practice(s) during the effective life. Procedures for recording shall follow guidance developed by the Board of Soil and Water Resources for the recording conservation practices.

EARNEST ACCOUNT:

17. Landowners requesting cost share funds for lakeshore restoration projects shall provide earnest money of \$250.00 per application. Earnest funds shall be collected prior to preparation of any preliminary design or application, and will be returned upon certification of the completed practice. Projects cancelled by the applicant will forfeit the earnest money.

PAYMENT PROCESS:

18. The following documentation shall be required as a condition for payment
 - a. Approved Certification Form for incentive payments
 - b. Approved Voucher Form for cost share payments
 - c. Copies of receipts and/or paid invoices for all expenses. Applicants requesting reimbursement for in-kind services shall submit a signed statement indicating the services provided, rate, quantities
 - d. The WMO and District Board may, with limitation, authorize the District Director to approve payments. The District Director shall, at the earliest opportunity, present all approved payments to the Board that approved the contract for their certification.

REPAYMENT OF FUNDS:

19. Should the applicant remove or fail to maintain the practice during its effective life, the applicant is liable to the District or other financial assistance source agency for the full amount of financial assistance received to install and establish the practice. The applicant is not liable for cost-share assistance received if the failure was caused by reasons beyond the applicant's control.

GRANT PROVISIONS:

20. For projects cost shared using funds from a federal, state or other non-local grant source, the cost share rates, eligible practices, and other related provisions set forth in the approved grant agreement, if different, shall prevail.

STAFF CREDENTIALS

21. The Scott District will ensure staff has the necessary skill, training and experience to plan, design and construct projects according to applicable standards and specifications. Building credentials and

maintaining or seeking certifications to retain knowledgeable staff is a high priority of the District, and funding for training purposes is incorporated into the District's approved annual budget.

Technical expertise of the District currently includes:

- a. 2 certified professionals in erosion and sediment control;
- b. 2 certified wetland delineators-in-training; and
- c. 8 staff with USDA – Natural Resources Conservation Service Job Approval Authority for ecological and engineering sciences

When professional engineering is required by law, or the size or complexity of a specific conservation practice requires expertise above District technical capacity, the District will utilize a private professional engineer licensed to practice in the State of Minnesota, or an appropriately-licensed engineer employed with the Minnesota Board of Water and Soil Resources or the USDA - Natural Resources Conservation Service.

DELEGATION

22. In 2015, the SWCD Board authorized the District Director to approve payments for projects completed under approved cost share applications, subject to Board certification at their next regular meeting. In March 2017, the SWCD Board authorized the District Director to sign Board-approved financial assistance applications.

GENERAL CONSERVATION PRACTICE PROVISIONS

The following provisions apply to the design and construction of conservation practices:

23. Soil Testing: A soil test may be required for any practice that targets the reduction of soil loss. The purpose of the soil test is to determine nutrient content of the soil so that more accurate estimates of phosphorus loading and reductions can be made. A soil test shall be performed for any practice requiring seeding of cool season, non-native grasses if the cooperator or contractor applies fertilizer in excess of the following rate per acre: Nitrogen (N) 80 lbs, Phosphoric Acid (P₂O₅) 80 lbs and Potash (K₂O) 80 lbs. All soil tests shall be from a soil testing laboratory shown on the Minnesota Department of Agriculture's list of approved Soil Testing Laboratories. Application rates of lime, commercial fertilizer, and manure shall be based on University of Minnesota recommendations, or from North Dakota's or South Dakota's Land Grant University. Soil testing requirements may be waived if acceptable soil tests from the site were taken within the previous three years.
24. Wetland Protection: NRCS Wetland Policy as found in the General Manual 190, Part 410 must be followed. This policy provides direction to the agency for compliance with the National Environmental Policy Act (NEPA). This policy prohibits NRCS from providing technical or financial assistance to participants that will adversely affect wetlands, unless the lost functions are fully mitigated.
25. Upland Treatment: As a requirement of eligibility, participants are required to perform upland treatment actions, through a conservation plan, according to Minnesota Conservation Planning Policy, and adequately address potential adverse impacts to conservation practices. Adverse impacts to conservation practices include, but are not limited to, increased siltation by water and/or wind borne soils, excessive runoff, degradation of vegetation practice components by pesticides transported in runoff and sediment, and degradation of wildlife habitat. Upland treatment shall, at a minimum, include controlling sheet and rill erosion to "T" and controlling all ephemeral gully erosion within the drainage area of the practice.

26. Materials: New materials must be utilized in the construction of practices, unless approved by a technical representative with appropriate Technical Approval Authority or licensed Engineer prior to installation.
27. Land Rights: Participants wanting to construct practices on land they do not own are responsible for obtaining easements, permits, right-of-way, water rights or other permission necessary to perform and maintain the practices. Expenses incurred due to these items are not eligible for cost share. The permission from the authority must be in writing and a copy must be provided to the Scott SWCD office prior to installation being made on the practice.
28. Permits: The applicant is responsible for obtaining all permits required in conjunction with the installation and establishment of the practice prior to starting construction of the project.
29. Operation and Maintenance: The applicant is responsible for the operation and maintenance of the conservation practice for the minimum lifespan listed in the specific provisions of this document.
30. Compliance with State and Local Regulations: Cost share may not be provided to an applicant that is in violation of any of the following
 - a. MN Rule 7020 (governing feedlots);
 - b. MN Rule 8420 (governing wetlands);
 - c. MN Statute 103F.48 (governing buffers);
 - d. Scott County Ordinance Chapter 70-8-11 (governing Shoreland zone); and
 - e. Scott County Ordinance No. 4 Chapter 1(governing septic systems, as evidenced based on visual observation of surface discharge or formal notification by the county).
 - f. MN Rule 8400 (governing Excessive soil Loss Control)

Regulatory compliance shall only apply to the following:

- g. The parcel of land on which the practice is being implemented; and
- h. Any parcel owned (or co-owned) by the applicant that is contiguous to the parcel on which the practice is being implemented (parcels separated only by road right-of-way or water feature, or which touch at a property corner, shall be deemed contiguous); and
- i. The applicant's primary residence and/or farmstead, if applicable.

Compliance with the buffer requirements under MN Statute 103F.48 shall be required as a condition of cost-share, regardless of applicability dates provided in the law. Compliance with the Excessive Soil Loss Control rule shall apply only if there is an outstanding formal complaint received by the county or District.

Notwithstanding the above, an applicant may be eligible for cost-share regardless of non-compliance, provided they sign and agree to implement a conservation plan that details specific actions and timelines for coming into compliance, and/or their cost share application is for a project intended to resolve the non-compliance issue.

An applicant may apply for a waiver from this section using a form provided by the District. The District Board may approve a waiver request upon determination that allowing the non-compliant situation to continue serves the greater public good than not installing the conservation practice for which cost share is being requested. Approved waiver requests shall be reported to the WPC.

SPECIFIC CONSERVATION PRACTICE PROVISIONS

COST SHARE TIERS

The following tiers are referenced in the Cost Share column in the table under each practice:

Tier 1

- Max Rate: 50% of actual construction costs, not to exceed 50% of cost estimate
- Minimum Requirements:
 - If upland treatment is required, the landowner or occupier must sign and follow a conservation plan agreement that achieves upland treatment on any cropland that a) drains to the practice and b) they either own or occupy.

Tier 2

- Max Rate: 75% of actual construction costs, not to exceed 75% of cost estimate
- Minimum Requirements:
 - If upland treatment is required, the landowner or occupier must sign and follow a conservation plan agreement that achieves upland treatment on any cropland that a) drains to the practice and b) they either own or occupy.
 - Complete a Conservation Assessment on all cropland within the FSA Farm on which the practice is being applied, plus any contiguous FSA Farm. If no FSA Farm ID exists, then the assessment must include all cropland within the parcel on which the project will be installed, plus any contiguous parcels.

Tier 3

- Max Rate: 90% of actual construction costs, not to exceed 90% of cost estimate
- Minimum Requirements:
 - If upland treatment is required, the landowner or occupier must sign and follow a conservation plan agreement that achieves upland treatment on any cropland that a) drains to the practice and b) they either own or occupy.
 - Achieve a minimum of 30% residue cover, after planting, on any field that intersects the contributing drainage area for the proposed project. The minimum residue cover shall be achieved over the entire crop rotation. Residue cover may be from last-year's crop, cover crops, and/or permanent vegetation; and
 - Complete a Conservation Assessment on all cropland within the FSA Farm on which the practice is being applied, plus any contiguous FSA Farm. If no FSA Farm ID exists, then the assessment must include all cropland within the parcel on which the project will be installed, plus any contiguous parcels.

The maximum cost share rates shown shall be inclusive of all sources.

Notwithstanding the above, the maximum cost share rate shall be seventy five (75%) for the following:

- Non-agricultural practices, including but not limited to streambank stabilization; and
- Practices that are otherwise treating erosion for which the primary cause is not agricultural land use immediately above the site; and
- As pertaining to Tier 3, above, the field in which the project is located, or is immediately downstream of, is not in a cash crop or grain/forage rotation, or the cause of the resource concern is not directly attributable to agricultural land use.

Farms and parcels separated only by a road, driveway, easement, or water feature, or which share a common corner, shall be deemed contiguous.

Conservation Assessments shall, at a minimum, address the following resource concerns: sheet, rill, inter-rill and gully erosion; buffers; manure management practices; open tile intakes; feedlot runoff, and sedimentation on neighboring property due to excessive soil loss.

Upland treatment shall include preventing ephemeral or classic gully erosion and controlling soil sheet and rill erosion to tolerable soil loss rate.

PRACTICES

Practices eligible for financial assistance are listed below along with notes detailing specific conditions that apply to each.

PRACTICE STANDARD 712 – BIORETENTION BASINS

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Bioretention Basin (Redevelopment/Community)	712			50% of actual construction costs, not to exceed 50% of cost estimate	10 years
Residential Rain Gardens (if identified in a Local Water Plan)				50% of actual construction costs, not to exceed 50% of cost estimate	10 years
Residential Rain Gardens		1 time	\$250 - \$750		10 years

1. Upland treatment is required for cost shared projects. See General Conservation Practice Provision #3.
2. Materials eligible for cost share include plants, biologs, erosion control blankets, site preparation materials, edging, mulch, stakes and other items critical to the proper function of the rain garden. Materials not eligible for cost share include those items that do not benefit practice function, such as ornamental rock or other decorative items.
3. To qualify for the residential rain garden incentive payment, the applicant must participate in an approved rain garden class and construct the raingarden in accordance with applicable Blue Thumb guidelines. To qualify for cost sharing, a residential rain garden must be identified as a priority project in an approved Local Water Plan.
4. Incentives shall be limited to the following maximum amounts: \$250 for raingardens between 150 and 299 sq. ft.; \$500 for raingardens between 300 and 449 sq. ft.; and \$750 for raingardens greater than 450 sq. ft.

PRACTICE STANDARD 340 – CONTOUR BUFFER STRIPS

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Contour Buffer Strips – Non-harvestable	332	Annual	Current CRP Rate	50% of actual construction costs, not to exceed 50% of cost estimate	10 years
Contour Buffer Strips – Harvestable	332	Annual	75% of Current CRP Rate		10 years

1. WMO incentives may only be provided if the applicant had applied for CRP funding and was not accepted

PRACTICE STANDARD 340 – CONTOUR FARMING

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Contour Farming	332	Annual	\$20/acre		10 years

1. Eligibility for funding is limited to projects where contouring is implemented in conjunction with buffer strips or terraces, and dominant slopes in the field are 6% or greater.
2. This incentive is only available where current cropping practices would not meet the 340 practice standard.

PRACTICE STANDARD 340 – COVER CROP

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Cover Crops – Multi-year	340	Annual	\$40/acre		3 Year
Cover Crops – Annual	340	On-time	\$20/acre		1 Year

1. Maximum payment for the multi-year incentive is \$12,000 per applicant (100 acres x \$40/acre x 3yrs).
2. Maximum payment under the annual incentive is \$2000.
3. To qualify for the multi-year incentive, cover crops must be planted on the same number of acres and on the same fields for a minimum of 3 consecutive years.
3. Payment shall be issued each year after the technical representative has certified seeding.
4. An applicant may, after an initial contract for multi-year incentives has been completed in accordance with applicable terms and conditions, be eligible to apply for additional multi-year incentives, up to a maximum of \$12,000, provided the applicant continues to plant cover crops all acreage covered under previous contract(s), and all land covered under the new contract is additional to any previous contract.
5. Seeding rates and dates may vary from NRCS practices standard guidelines subject to prior approval of a District Technical Representative with applicable knowledge and expertise. Payment for projects for which seeding rates, mixes, and/or dates deviate from NRCS guidelines shall be delayed until such time that successful establishment – based on density and health of the cover crop - can be evaluated and verified at the appropriate time based on species.

PRACTICE STANDARD 342 – CRITICAL AREA PLANTING

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Critical Area Planting	342			Tier 1, 2 or 3	10 years

1. Upland treatment is required. See General Conservation Practice Provision #3.
2. Critical Area Planting (342) must be completed following an approved establishment and management plan.
3. Application through the USDA-NRCS EQIP program during a scoring and ranking period is prerequisite.

PRACTICE STANDARD 362 – DIVERSION

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Diversion	362			Tier 1, 2 or 3	10 years

1. Upland treatment is required. See General Conservation Practice Provision #3.
2. The use of tile or other underground pipe to drain hillside seeps, low or wet spots in fields is not an eligible single component of this practice.
3. Diversion (362) is allowed as a stand-alone practice for feedlots when used as a clean water diversion.
4. If a Diversion (362) is a component of Wastewater and Feedlot Runoff Control (784), cost sharing is **NOT** authorized for the Diversion (362) as a stand-alone practice. The cost will be included in the cost of Wastewater and Feedlot Runoff Control (784).
5. Application through the USDA-NRCS EQIP program during a scoring and ranking period is prerequisite.

PRACTICE STANDARD 393 – FILTER STRIP

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	

Filter Strip – New non-harvestable	393	Annual	\$300/ac for the NRCS minimum; \$150/ac for the area beyond the minimum, up to maximum of 75'		10-15 years
Filter Strip - New harvestable	393	Annual	\$300/ac for the NRCS minimum; \$150/ac for the area beyond the minimum, up to a maximum of 75'	75% of actual construction costs, not to exceed 75% of cost estimate (1)	10-15 years
Filter Strip - Re-enroll of expired harvestable	393	Annual	Current CCRP rate		10-15 years
Filter Strip - Re-enroll of expired non-harvestable to harvestable	393	Annual	Current CCRP rate		10-15 years
Sensitive Field Border (Harvestable)	393	Annual	\$200.00/ac		10 years

1. Cost share shall be limited to filter strips seeded to native grasses only.
2. Soil testing may be required for filter strips. See General Conservation Practice Provision #1.
3. The combined annual incentive payment authorized by the Scott WMO on eligible acres and the annual Continuous Conservation Reserve Program (CCRP) rental payment for new filter strips shall not exceed \$300/acre/year.
4. Sensitive field borders include the edges of fields that are not included in Standard 393, such as road ditches, drainage ditches without seasonal perennial stream characteristics, or other areas deemed sensitive. Minimum width is 33'.
5. Filter Strips located in areas where the maintenance of permanent natural vegetation is used to meet the requirements under Chapter 70-8-11, Scott County Zoning Ordinance and/or the Buffer Law under MN Statute 103F.48, are eligible for a one-time payment of \$200/acre for establishment of cool season grasses and \$500/per acre for establishment of native grasses or prairie. Land enrolled in CRP or other program that pays for establishment costs is not eligible for this payment.
6. Non-harvestable filter strips are not eligible for renewal.
7. Harvestable filter strips must be harvested at least every other year.
8. Re-enrolled filter strips are eligible for funding up to the minimum width as set forth in the 393 standard, or 50', whichever is greater.
9. New harvestable filter strips must have crop history 4 of the past 6 years unless there are extenuating circumstances approved by the Watershed Planning Commission or County Board.
10. Incentives for renewal filter strips where vegetation is already established and consistent with applicable standards and specifications are eligible for a one-time payment.
11. Sites where upland runoff does not flow through the filter strip due to the presence of a levee (e.g. spoil piles) or negative slope shall not be eligible under this practice. They may, however, be eligible under the riparian Buffer Practice.
12. The NRCS minimum shall be based on removal of sediment and sediment associated material removal, as set forth in Table 1 of Filter Strip Standard 393, except in cases where the local water plan identified soluble material and pathogen removal as a priority, in which case the minimum may be as specified under the soluble materials and pathogens section of Table 1 of the Standard.
13. Livestock grazing may be used for maintenance, provided it is performed in accordance with an approved grazing plan.

PRACTICE STANDARD 410 – GRADE STABILIZATION STRUCTURE

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Grade Stabilization	410			Tier 1, 2 or 3	10 years

1. Upland treatment is required. See General Conservation Practice Provision #3.
2. Cost is for earthwork and any seed and seeding expenses.
3. Application through the USDA-NRCS EQIP program during a scoring and ranking period is prerequisite.

PRACTICE STANDARD 412 – GRASSED WATERWAY

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Grassed Waterway	412			Tier 1, 2 or 3	10 years

1. Upland treatment is required. See General Conservation Practice Provision #3.
2. Cost is for earthwork and any seed and seeding expenses.
3. Application through the USDA-NRCS EQIP program during a scoring and ranking period is prerequisite.

PRACTICE STANDARD – INNOVATIVE PRACTICES

	Incentive Payment		Cost Sharing	Lifespan
	Type	Amount \$	Maximum Eligible Cost Share Rate	
Innovative Practices (Redevelopment/Community)			50% of actual construction costs, not to exceed 50% of cost estimate	10 years
Innovative Practices (New Development)			50% of actual construction costs, not to exceed 50% of cost estimate	10 years
Conservation Drainage			75% of actual construction costs	10 years

1. Initial interest for innovative practices is discussed with Scott WMO staff.
2. Applications are taken by Scott SWCD staff.
3. Applications move directly to the WPC and are not reviewed by the Screening Committee. The WPC makes a recommendation to the WMO Board, who makes the final approval/disapproval decision.
4. Approved applications are assigned to Scott SWCD for technical assistance.
5. Eligible practices include regenerative dustless street sweepers, porous pavers, porous pavement, green roofs, and other practices determined on a case by case basis.
6. Conservation drainage practices included but are not limited to denitrifying bioreactors, water quality surface inlet protection and vegetative subsurface drain outlets.

PRACTICE STANDARD – CONSERVATION COVER (aka NATIVE GRASS)

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Cropland and Pastureland		Annual	\$175 to \$275/ac	50% of actual construction costs, not to exceed 50% of cost estimate	10 years
Other lands		1 Time	\$500/acre		10 years
Advance Construction Cover	TN 31	1 Time	\$200/acre	<u>Not to exceed \$1,000</u>	1 year
Maintenance (other than prescribed burn)		1 Time		50% of actual costs, not to exceed 50% of cost estimate	

1. Cropland includes any land where grain, vegetable, and/or forage crops have been grown and harvested in each of the last 3 years, and in at least 8 of the last 10 years. Pastureland includes any land that has been actively pastured by livestock for the last 3 years, and for at least 8 of the last 10 years. Hay land must consist of at least 25% alfalfa and have been harvested at least once in each of the last 3 years, and in a minimum of 8 of the last 10 years.
2. Maximum annual incentive rates shall be determined as follows: \$275/acre for soils with D or greater slopes and for areas within 300' of a protected water course, drainage ditch, Type III or greater wetland, intermittent stream as depicted on USGS quadrangle maps, or top of a bluff or ravine; \$225/acre for soils with C slopes; \$200/acre for soils with B slopes, and \$175/acre for soils with A slopes.
3. Notwithstanding 2. above, payment shall be limited to a maximum amount such that the overall total cost benefit for volume reduction does not exceed \$2000 per acre foot of runoff.

4. Cost share for establishment may include site prep, seeding and first-year mowing.
5. Upland treatment is required
6. The minimum project size for the one-time incentive is 1/2. Payment for the one-time incentive is pro-rated based on actual size.
7. Land where the maintenance of permanent natural vegetation is required under Chapter 70-8-11, Scott County Zoning Ordinance and/or MN Statute 103F.48, may only be eligible for the 1 time payment of \$500/acre.
8. Application through CRP or related program is prerequisite for projects over 10 acres, if the site meets CRP program eligibility requirements and the program has acres and is actively accepting applications.
9. By default, Practice Standard 327 will be used. Practice Standards 643 and 645 may be used if preferred by the applicant, required by a grant, and deemed technically feasible by the technical representative; maximum costs shall, however, shall be based on meeting 327. Planting of trees consistent with the practice standard may be included as eligible construction costs, at the time of initial seeding or within 5 years of initial seeding. Eligible expenses include stock, tree mats, and temporary tree protectors.
10. An applicant may apply for Advance Construction Cover (ACC) payment for land seeded to temporary grasses or small grains for the purpose of accommodating construction of conservation practices when cash grain crops would otherwise be growing. The intent of this payment is to offset lost revenues in order to encourage mid- to late-summer construction when successful stabilization and contractor availability can be maximized. Species selection and seeding rates and methods must be consistent with Technical Note 31, as revised, and must be completed in the fall or spring prior to planned construction. Payments shall be subject to construction of the proposed project being completed between July 1st and September 10th. ACC shall be included as an eligible component of the primary practice, not as a separate, stand-alone practice.
11. Maintenance under this practice may include mowing, disking or other method approved by the WMO or its agent. Applications for maintenance must be made separate from applications for establishment and annual or one-time incentive payment. The intent is to provide funding assistance for maintenance in years 4 or 5 after establishment. Cost share for maintenance may not be provided more than one time per applicant, per ten years. Cost share for prescribed burn shall follow requirements under that practice standard (below).
12. Grazing is a permitted maintenance option. It must, however, be performed in accordance with an approved grazing plan and is not eligible for cost share.
13. A landowner may apply for funding for up to 10 additional years upon expiration of their original contract. The approving authority may, at its discretion, approve, approve with modification, or deny any such application, based on its determination of public benefit. Consideration of benefit shall be based cost compared to any or all of the following: potential threat to water quality should the land return to agricultural use, in whole or part; minimum acreage necessary to maintain comparable the water quality benefits as achieved with the original project; level of impairment of the receiving water body; and available funds.

PRACTICE STANDARD – NATURAL SHORELINE RESTORATION and/or STABILIZATION

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Natural Shoreline Restoration		1 time		50% of actual construction costs, not to exceed 50% of cost estimate	10 years
Shoreline Stabilization	580			75% of actual construction costs, not to exceed 75% of cost estimate	10 years
Streambank Stabilization	580			50% to 75% of actual construction costs, not to exceed cost estimate	10 years

1. To qualify for natural lakeshore restoration funds, the applicant must participate in an approved natural lakeshore restoration class.
2. Applications for cost share funding will be reviewed by the Screening Committee prior to consideration by the WPC.
3. Project designs shall meet the intent of restoring the shoreline to predominantly natural conditions, including but not limited to the use of natural and native vegetative buffers, limiting turf grass, and using bioengineering methods. Minimum specifications include a 10 feet wide seeded native vegetation buffer along no less than 50% of the total width of the lot, less the footage or shoreline having existing natural and desirable vegetation. Where agriculture is

adjoining land use an area of unmaintained vegetation or conservation plan must be in place in accordance with County Shoreland Rules.

4. Funding for hard armor practices (e.g. rock riprap) are not eligible for funding unless bio-engineering methods are determined to be an insufficient means of needed stabilization.
5. Upland treatment is required. See General Conservation Practice Provision #3.
6. Streambank Stabilizations must be reviewed by the Screening Committee with the cost share amount being discretionary depending on project benefits.

PRACTICE STANDARD – NUTRIENT MANAGEMENT

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Manure Testing	NA			100% of Actual Cost	1 year
Variable Rate Application	NA	1-time	\$10/ac		1 year

1. Manure testing kits are available through Scott SWCD.
2. Eligibility is limited to a maximum of \$2,000 per applicant, in either a single contract or contracts over multiple years. Payment may not be made more than one time on any given acre or field.
3. Funds for VRA shall be prioritized for producers that do not already use VRA as the primary means of fertilizer application for their operation.
4. Sheet and rill erosion shall be controlled to tolerable soil loss rates, and ephemeral gully erosion shall be controlled on all cropland covered under the VRA application, as determined by a conservation assessment. If current practices do not meet T or control ephemeral erosion, then the applicant may become eligible for VRA incentives by agreeing to follow a Conservation Plan.
5. Manure shall be credited and all fertilizer application rates shall be consistent with U of M recommendations.
6. Copies of paid invoices from the applicator (if not the applicant) and maps showing grid sampling results, organic matter, and prescription rates shall be submitted as a condition of payment. The applicator shall attest that application was completed in accordance with the prescription map, by signing a form prepared by the District.
7. The Technical Representative has discretion to withhold payment for acreage where sampling results and or application rates do not appear reasonable or accurate.

PRACTICE STANDARD 338 – PRESCRIBED BURNING

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Prescribed Burning	338	1 Time		50% of actual construction costs, not to exceed 50% of cost estimate	5 years

1. A detailed burn plan describing the practice objective, species to control and species to be benefited, timing, weather conditions and management guidelines will be developed.
2. Technical assistance will be provided by a technically qualified and adequately insured individual.
3. All laws and regulations pertaining to burning will be followed.
4. **The conservation plan must document that the landowner has been notified in writing that they are subject to all liability due to damages caused by fire.**
5. It is the landowner's responsibility to obtain all permits and to notify surrounding landowners that may be affected.
6. Cost share is eligible once every 5 years for projects that were established without cost share assistance, or are not within the term of a cost share contract.
7. Associated costs with obtaining and notification of neighbors, units of government, and agencies are entirely the landowner's expense.
8. Cost share may not be provided more than one time for projects that are within the term of a cost share contract.

PRACTICE STANDARD 390 and 391 – RIPARIAN BUFFER

	NRCS	Incentive Payment	Cost Sharing	Lifespan
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	Code	Type	Amount \$	Maximum Eligible Cost Share Rate	
Forested Stream Buffer Improvement >1 ac parcel	391			Up to \$1,000/acre for plants, seeds, labor and materials	15 years
Herbaceous or Forested Buffer Establishment (Native Vegetation)	390 or 391	Annual	\$150/ac up to 50 foot width	75% of actual construction costs, not to exceed 75% of cost estimate	10-15 years
Herbaceous or Forested Buffer Establishment	390 or 391	Annual	\$150/ac up to 50 foot width		10-15 years

1. A potential tax credit exists for parcels greater than 20 acres.
2. Projects can be either new establishment or renovation.
3. Plan required from the District.
4. Minnesota Conservation Corps may be used for labor counting as part of the cost share

PRACTICE STANDARD 600 – TERRACE

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Terrace	600			Tier 1, 2 or 3	10 years

1. Upland treatment is required. See General Conservation Practice Provision #3.
2. The use of Subsurface Drain (606) or Underground Outlet (620) to drain hillside seeps, low or wet spots in fields is not an eligible single component of this practice. The land occupier shall identify, in writing the purpose of the larger tile and indicate the area that it will serve. The difference in cost of installing tile larger than that specified by the technician will be borne by the producer.
3. Cost sharing for Underground Outlet (620) is limited to the diameter and length needed to convey water from surface intakes to a safe outlet as determined by the designer.
4. Cost sharing for Subsurface Drain (606) is limited to drains needed in the impounded area of the terrace as determined by the designer.
5. Application through the USDA-NRCS EQIP program during a scoring and ranking period is prerequisite.

PRACTICE STANDARD 620 – UNDERGROUND OUTLET

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Underground Outlet	620			Tier 1, 2 or 3	10 years

1. Cost sharing is limited to replacing existing surface tile inlets.

PRACTICE STANDARD 635 – VEGETATED TREATMENT AREA (formerly Wastewater Treatment Strip)

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Level 2 to 4 Vegetated Treatment Area – lot size of 1 acre or less	313			Tier 1, 2 or 3	10 years
Level 2 to 4 Vegetated Treatment Area – lot size of 1.1 acre to 2 acres	313			Tier 1, 2 or 3	10 years

Level 2 to 4 Vegetated Treatment Area – lot size 2.1 to 5 acres	313			Tier 1, 2 or 3	10 years
Level 2 to 4 Vegetated Treatment Area – lot size greater than 5 acres	313			Tier 1, 2 or 3	10 years
Level 5 Control – vegetated buffer	313			Tier 1, 2 or 3	10 years

1. Payment is limited to where the implementation of this practice will correct an existing pollution problem. As outlined by the EQIP manual, any EQIP contract that includes an animal waste storage or treatment facility will provide for the development of a CNMP prior to implementation of the storage or treatment. MPCA's definition is used to define a pollution problem.
2. Consult EQIP General Provision 12 for Comprehensive Nutrient Management Plan (CNMP) requirements.
3. Consult EQIP General Provision 13 for requirements related to manure application land base and/or manure applications on land not owned or controlled by the EQIP contract holder.
4. Payment for Vegetated Treatment Area on operations with pollution problems less than 5 years old is not authorized.
 - a. Examples:
 - i. Producer A has had a dairy farm operation for 20 years. Producer B purchases the dairy and continues milking cows. This pollution problem is greater than 5 years old and producer B meets this eligibility requirement for Payment assistance.
 - ii. A producer has a dairy operation on farm A. He purchases farm B and moves the dairy operation to farm B where there was no previous pollution problem. Farm B would be considered a new facility and would not be eligible for Payment assistance.
5. Payment is not authorized for Vegetated Treatment Area on operations where the system establishment is required as a result of judicial or court action. MPCA Stipulation Agreement and Schedule of Compliance (SOC) are not considered a judicial or court action, and practice implementation is still considered voluntary for EQIP eligibility purposes, even if fines have been levied by the MPCA.
6. Application through the USDA-NRCS EQIP program during a scoring and ranking period is prerequisite.

PRACTICE STANDARD 313 – WASTE STORAGE FACILITY

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Concrete or Metal Tank	313			Tier 1, 2 or 3	10 years
Stacking Slab	313			Tier 1, 2 or 3	10 years
Pond – composite liner	313			Tier 1, 2 or 3	10 years
Pond – membrane liner	313			Tier 1, 2 or 3	10 years
Pond – no liner	313			Tier 1, 2 or 3	10 years
Pond – soil liner	313			Tier 1, 2 or 3	10 years
Concrete slab	313			Tier 1, 2 or 3	10 years
Non liquid tight deep pack – concrete wall	313			Tier 1, 2 or 3	10 years
Certification				75% of actual costs, not to exceed 75% of cost estimate, up to a maximum of \$1000	

1. The eligible volume of storage is the total storage volume, including the design storage volume plus freeboard as required in the standard. As outlined in Waste Storage Facility (313), the maximum design storage period is 14 months.
2. The maximum allowable storage volume is based on the current capacity of the existing facility plus up to 25% expansion.
3. Payment is limited to where the implementation of this practice will correct an existing pollution problem. As outlined by the EQIP manual, any EQIP contract that includes an animal waste storage or treatment facility will

provide for the development of a CNMP prior to the implementation of the 313. MPCA's definition is used to define a pollution problem.

4. Consult EQIP General Provision 13 for Comprehensive Nutrient Management Plan (CNMP) requirements.
5. Consult EQIP General Provision 14 for requirements related to manure application land base and/or manure applications on land not owned or controlled by the EQIP contract holder.
6. For purposes of this practice, "waste" refers to raw manure and urine; runoff water contaminated through contact with manure and urine; milking center wastewater; and silage leachate as appropriate.
7. Silage storage facilities are not eligible components. Payment for components addressing silage leachate concerns under Waste Storage Facility start at the edge of the silage storage facility.
8. For livestock operations that are not or will not be permitted under the NPDES system, silage leachate systems can be funded as stand-alone practices if these systems are the only livestock related practices being requested. The development of a CNMP IS required with a silage leachate system but the CNMP does NOT have to be implemented.
9. Payment is authorized for tanks that serve as foundations for buildings, however eligible costs are those associated with the storage function only. Payment is not authorized for production oriented building components.
10. Payment for Concrete Slab is authorized for concrete agitation and pump out pads, pond lining, ramps and chutes within the pond.
11. Payment is authorized for feedlot relocation, with the following provisions:
 - a. The payment for relocation shall be based on the most practical and feasible waste management facility at the existing site.
 - b. Payment at the new site is only authorized for components applicable to the transfer, storage, or treatment of wastes.
 - c. Existing location is to be abandoned in an environmentally safe manner as outlined in MPCA guidelines.
 - d. Operator must agree to permanently remove all livestock from the existing location along with any other designated pollution sources. The following statement shall be included in the EQIP contract: "As a condition of EQIP Payment on feedlot relocation, the producer agrees to permanently eliminate all animals and designated pollution sources at this facility. Failure to comply with this provision may result in a recovery of federal Payment funds."
 - e. In the event of a change in ownership, the abandoned lots will permanently not be eligible for future USDA Payment on waste management practices.
12. Payment for Waste Storage Facility (313) on operations with pollution problems less than 5 years old is not authorized.
 - a. Examples:
 - i. Producer A has had a dairy farm operation for 20 years. Producer B purchases the dairy and continues milking cows. This pollution problem is greater than 5 years old and producer B meets this eligibility requirement for Payment assistance.
 - ii. A producer has a dairy operation on farm A. He purchases farm B and moves the dairy operation to farm B where there was no previous pollution problem. Farm B would be considered a new facility and would not be eligible for Payment assistance.
13. Payment is not authorized for Waste Storage Facility (313) on operations where the system establishment is required as a result of judicial or court action. MPCA Stipulation Agreement and Schedule of Compliance (SOC) are not considered a judicial or court action, and practice implementation is still considered voluntary for EQIP eligibility purposes, even if fines have been levied by the MPCA.
14. State NRCS Conservationist approval is required for systems involving agricultural waste generated off-site.
15. Payment for Waste Storage Facility is capped at \$250,000. This cap applies to the total facility being installed under 313. Other components such as manure transfer, safety fence, etc. are allowed in the contract in addition to the capped \$250K for the 313 practice.
16. Non Liquid Tight Deep Pack – Concrete Wall is authorized only for stacking slabs where enough bedding or organic matter is added to the manure to eliminate liquid runoff or leaching and therefore a concrete floor is not required. The manure and organic pack resulting from the operation of a "Compost Barn" as defined by the University of Minnesota meets this definition.
17. Certification must be by an appropriately licensed professional engineer.
18. Application through the USDA-NRCS EQIP program during a scoring and ranking period is prerequisite.

PRACTICE STANDARD 629 – WASTEWATER TREATMENT

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Flocculation Treatment	629			Tier 1, 2 or 3	10 years
Vegetated Dosing Area	629			Tier 1, 2 or 3	10 years
Bark Bed	629			Tier 1, 2 or 3	10 years
Aerobic Treatment	629			Tier 1, 2 or 3	10 years

1. Payment is limited to where the implementation of this practice will correct an existing pollution problem. As outlined by the EQIP manual, any EQIP contract that includes an animal waste storage or treatment facility will provide for the development of a CNMP prior to implementation of the storage or treatment. MPCA's definition is used to define a pollution problem.
2. Consult EQIP General Provision 13 for Comprehensive Nutrient Management Plan (CNMP) requirements.
3. Consult EQIP General Provision 14 for requirements related to manure application land base and/or manure applications on land not owned or controlled by the EQIP contract holder.
4. Payment for Wastewater Treatment on operations with pollution problems less than 5 years old is not authorized.
 - a. Examples:
 - i. Producer A has had a dairy farm operation for 20 years. Producer B purchases the dairy and continues milking cows. This pollution problem is greater than 5 years old and producer B meets this eligibility requirement for Payment assistance.
 - ii. A producer has a dairy operation on farm A. He purchases farm B and moves the dairy operation to farm B where there was no previous pollution problem. Farm B would be considered a new facility and would not be eligible for Payment assistance.
5. Payment is not authorized for Wastewater Treatment on operations where the system establishment is required as a result of judicial or court action. MPCA Stipulation Agreement and Schedule of Compliance (SOC) are not considered a judicial or court action, and practice implementation is still considered voluntary for EQIP eligibility purposes, even if fines have been levied by the MPCA.
6. Payment rate includes components needed for the actual waste treatment. Components needed for temporary storage and transfer of wastes are covered under separate practices.
7. Application through the USDA-NRCS EQIP program during a scoring and ranking period is prerequisite.

PRACTICE STANDARD 638 – WATER AND SEDIMENT CONTROL BASIN

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Water & Sediment Control Basin	638			Tier 1, 2 or 3	10 years

1. The use of Subsurface Drain (606) or Underground Outlet (620) to drain hillside seeps, low or wet spots in fields is not an eligible single component of this practice. The landuser shall identify, in writing the purpose of the larger tile and indicate the area that it will serve. The difference in cost of installing tile larger than that specified by the technician will be borne by the producer.
2. Upland treatment is required. See General Conservation Practice Provision #3.
3. Cost sharing for Subsurface Drain (606) is limited to drains needed in the impounded area of the basin as determined by the designer.
4. Farmable WASCOD is eligible only if it is the most practical alternative, as determined by the District.
5. Application through the USDA-NRCS EQIP program during a scoring and ranking period is prerequisite.

PRACTICE STANDARD 351 – WELL DECOMMISSIONING (Unused Well Sealing)

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Well Decommissioning	351			75% of actual construction costs, not to exceed 75% of cost estimate	10 years

1. Maximum cost share amount from all sources shall be \$1000, except for wells that are being abandoned as part of a public water supply expansion project, in which case the maximum cost share amount shall be \$400.
2. Maximum cost share for state cost share funds is 50%.

PRACTICE STANDARD 657 – WETLAND RESTORATION

	NRCS Code	Incentive Payment		Cost Share	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Wetland Restoration	657	1 Time	\$2,000/Ac.	Up to 90% of actual construction costs, not to exceed 90% of cost estimate	15 years
		1 Time	Approved Bid	Up to 90% of actual construction costs, not to exceed 90% of cost estimate	Perpetual

1. Wetland Restoration Incentives are eligible for restorations that results in type III, IV, or V wetlands.
2. The applicant is responsible for obtaining easements, right of ways, local, state and federal permits and other permission necessary to perform and maintain the practice. Expenses incurred due these items are not cost shared. Incentive payments will not be made until proof of necessary permits has been provided.
3. The restored area shall not be used for irrigation or livestock watering purposes, to produce agricultural commodities, or for grazing livestock.
4. Upland Treatment is required.
5. Wetlands restored as part of a required mitigation plan or for wetland banking are not eligible for funding under this section.
6. A 30 foot minimum native buffer is required. Upland buffer can be completed as a filter strip or native grass planting practice using respective cost and incentive rates.
7. An approved application through the Conservation Reserve Enhancement Program (CREP) or Reinvest In Minnesota (RIM) for the proposed perpetual restoration is required in order to be eligible for funding under this section.
8. Bids shall be submitted to the District office using a form provided by District, or local water management agency, if applicable.
9. The District shall, with concurrence of the local water management agency when applicable, set a time period during which bids must be submitted.
10. The approving authority reserves the right to refuse any and all bids.

PRACTICE STANDARD – WHOLE FARM PLANNING

	NRCS Code	Incentive Payment		Cost Sharing	Lifespan
		Type	Amount \$	Maximum Eligible Cost Share Rate	
Whole Farm Planning		One time	\$5/acre		10 years

1. Maximum incentive amount shall be \$1000
2. This incentive is intended specifically to promote participation in the MN Agricultural Water Quality Certification Program (MAWQCP). To be eligible, the applicant must submit a completed MAWQCP application and complete an assessment following MAWQCP protocol.

APPENDIX A

I. SCOTT WATERSHED MANAGEMENT ORGANIZATION (WMO) SPECIAL PROVISIONS

The following provisions shall apply for projects utilizing Scott WMO funding, and shall supersede any conflicting policies and procedures of the Countywide Conservation Financial Assistance Program, above:

- A. The approval authority for financial assistance applications proposing to use WMO funds shall be determined in accordance with Figure 1, WMO Application Approval Decision Flow Chart, copied below.
- B. The District Board shall review and provide an action recommendation to the WMO on applications for which they are determined to be the approval authority under A, above.
- C. Applications for funding are considered by the WMO when completed applications are received. The review and approval process, however, may vary according to the type of practice and the benefits and/or cost effectiveness of the proposed project. In general, those practices and applications which are less cost effective, or for which pollutant removal cannot be readily calculated, may require a higher level of review and/or approval. Approval can be given administratively or by the Scott County Board acting as the Scott WMO. Administrative approval can be given for application requesting \$50,000 or less, and that conform to all the specifications in this Docket. Requests exceeding \$50,000 or that include deviations from this Docket require Scott WMO Board approval.
- D. Amendments to financial assistance contracts may be approved by the District Board unless it causes the project to exceed \$100 of WMO funds per ton of sediment, or \$50,000 in total WMO funds, in which case the amendment must be approved by the WMO.

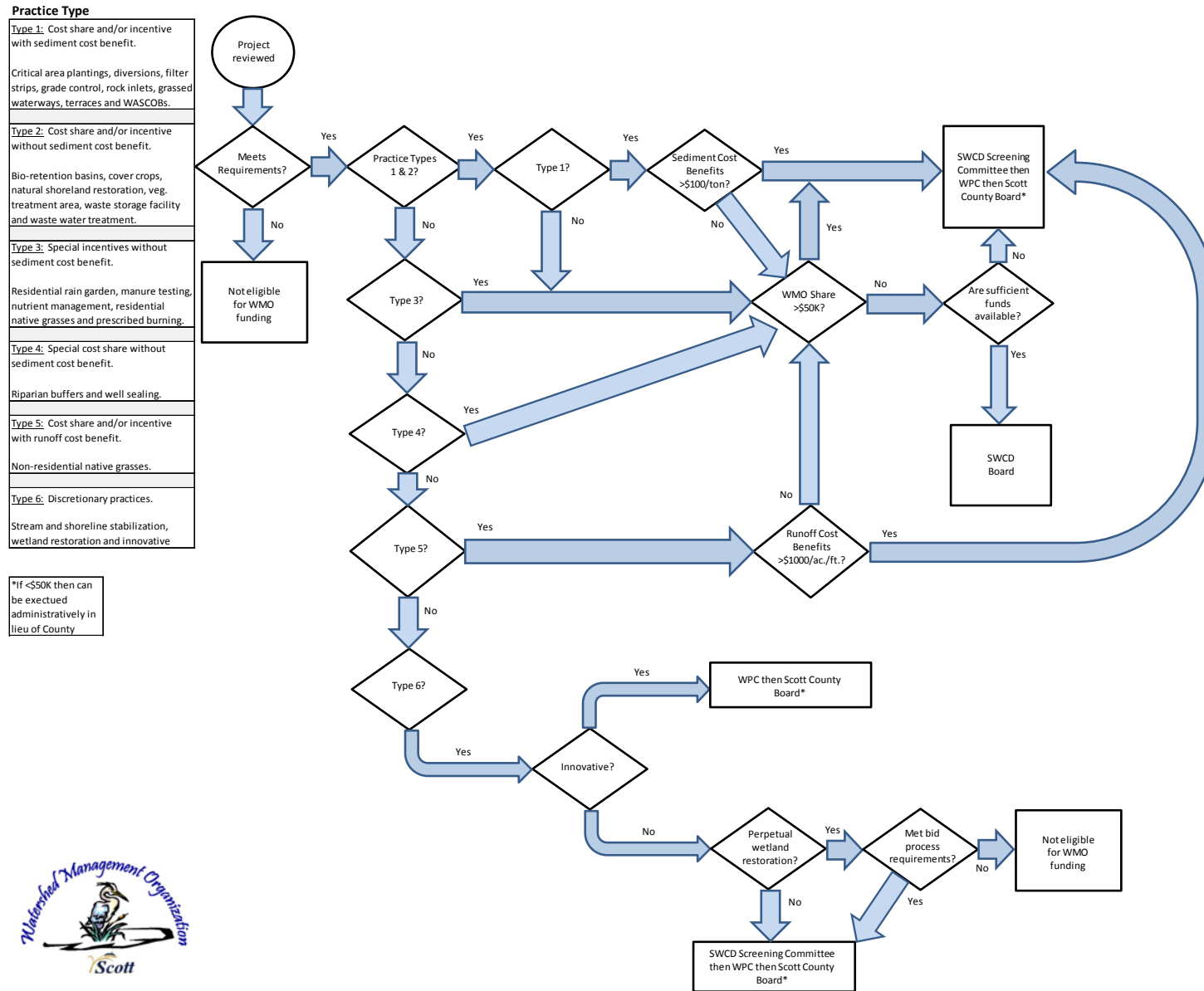
II. PRIOR LAKE SPRING LAKE WATERSHED DISTRICT (PLSLWD) SPECIAL PROVISIONS

The following provisions shall apply for projects utilizing PLSLWD funding, and shall supersede any conflicting policies and procedures of the Countywide Conservation Financial Assistance Program, above:

- A. The approval authority for financial assistance applications proposing to use PLSLWD funds shall be determined in accordance with Figure 2, PLSLWD Application Approval Decision Flow Chart, copied below.
- B. The District Board shall review and provide an action recommendation to the PLSLWD on applications for which it is determined they are the approval authority under A, above.
- C. Amendments of greater than 10% of the original cost share amount shall be approved by the PLSLWD if the amendment causes the project to exceed \$100 of PLSLWD funds per pound of Phosphorus and/or to exceed \$7,500 in total PLSLWD cost share. Amendments of 10% or less than the original cost share amount may be approved by the District.
- D. The PLSLWD provides financial assistance for rain barrels and lake water irrigation systems. These programs are administered separately by PLSLWD staff.

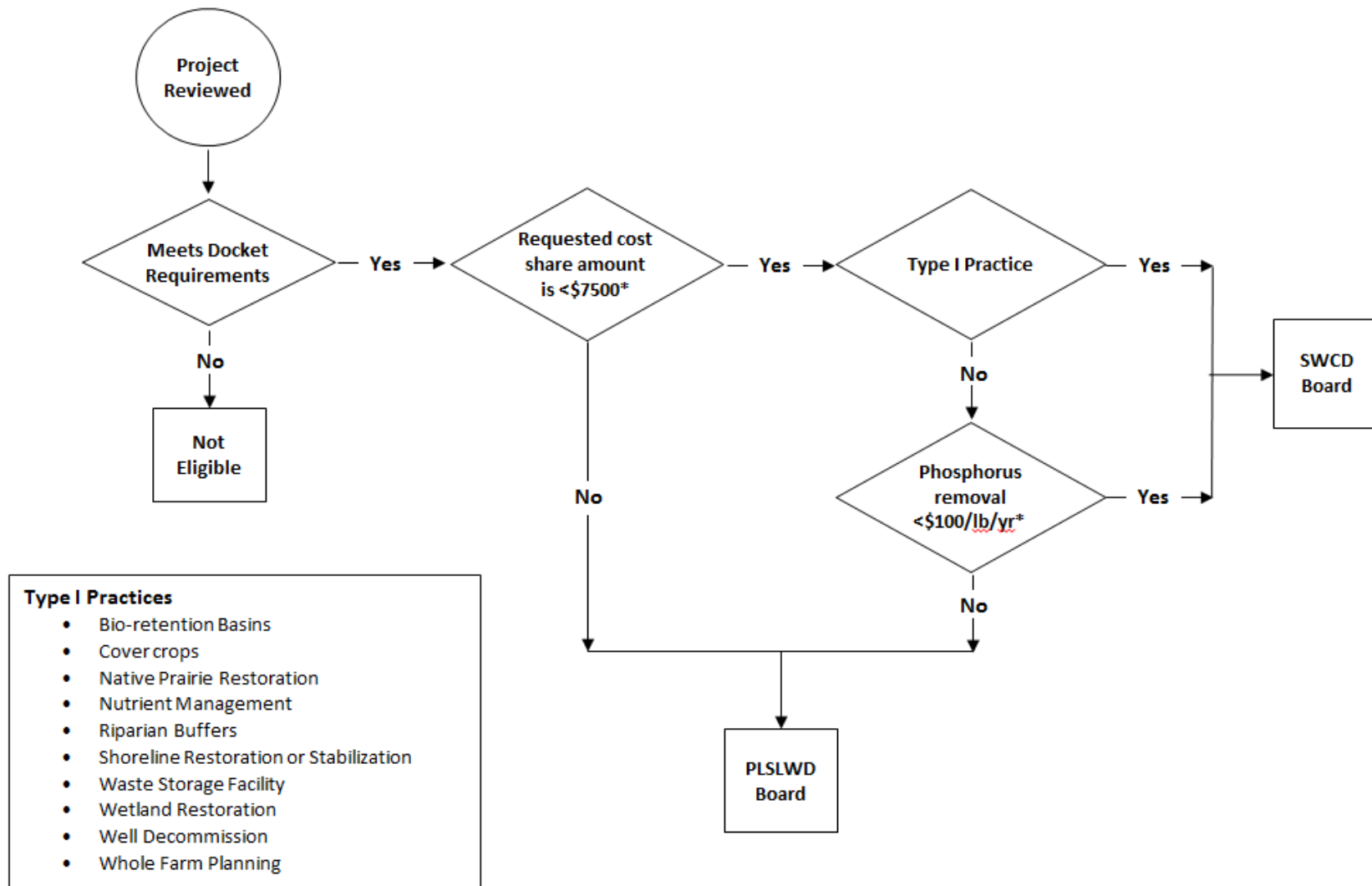
APPENDIX A (cont.)

Figure 1 - Scott WMO Application Approval Decision Flow Chart



APPENDIX A (cont.)

Figure 2 - PLSLWD Application Approval Decision Flow Chart



APPENDIX F

(See Map 7 for Other Waters; Resolution from Scott SWCD)

RESOLUTION #17-01

LOCAL WATER RESOURCES RIPARIAN PROTECTION IN SCOTT COUNTY

WHEREAS, Minnesota statute 103F.48 requires Soil and Water Conservation Districts (SWCD's) in consultation with local water management authorities to develop, adopt, and submit to each local water management authority within its boundary a summary of watercourses for inclusion in local water management authority's plan; and

WHEREAS, the Board of Water and Soil Resources (BWSR) has adopted the Local Water Resources Riparian Protection ("Other Watercourses") Policy, dated August 25, 2016, which identifies steps SWCD's are required to take in developing said inventory; and

WHEREAS, the Scott SWCD consulted with local water management authorities to discuss criteria, methodology and available information for identification of "other watercourses"; and

WHEREAS, local water management authorities except Vermillion River Watershed Joint Powers Organization (VRWJPO) concurred "other watercourses" should be identified based the presence of bed and bank land features as evident through aerial photos, and that priorities and protection measures should be based on criteria including: land slope within 300, land use within 300 feet, and impairment of the downstream water body; and

WHEREAS, using guidance provided by local water management authorities, the Scott SWCD created a geodatabase that includes identification of "other watercourses" outside the Vermillion River Watershed and attributes for each "other watercourse" segment for determining priorities and protection measures; and

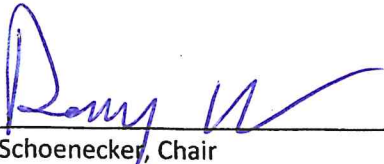
WHEREAS, the Scott SWCD consulted with the Vermillion River Watershed Joint Powers Organization and jointly agreed that Map 1 of their Watershed Management Plan, adopted June, 2016, constitutes an adequate summary of "other watercourses" and protection strategies for the purposes of Minnesota statute 103F.48; now therefore

BE IT RESOLVED, the summary of "other watercourses" for Scott County shall be as follows:

- Those watercourses identified on Exhibit A for areas outside the Vermillion River Watershed, and
- Those watercourses identified on Exhibit B for areas inside the Vermillion River Watershed it Scott County.

BE IT FURTHER RESOLVED, the Scott SWCD Director shall by June 30, 2017, submit a copy of this Resolution along with a digital copy of the "other watercourses" data set to BWSR and to each local water management authority for inclusion in their water management plan.

PASSED AND APPROVED this 20 day of June, 2017.


Doug Schoenecker, Chair

Attest: 
Troy Kuphal, District Director

APPENDIX G

(Roles and Responsibilities of Government)

APPENDIX G

Appendix G.1. Roles and Responsibilities of Government for Groundwater Regulation

Government	Local Units & Roles
Federal	<p><i>U.S. Environmental Protection Agency (EPA)</i></p> <ul style="list-style-type: none"> • Safe Drinking Water Act—includes source water protection; wellhead protection; underground injection; groundwater rules. • Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)—investigates, enforces clean-up of releases of hazardous substances, pollutants, and contaminants to groundwater. <p><i>Agency for Toxic Substances and Disease Registry (ATSDR)</i></p> <ul style="list-style-type: none"> • Assessment—conducts assessment of health risks at Superfund sites.
State	<p><i>Minnesota Department of Natural Resources (MDNR)</i></p> <ul style="list-style-type: none"> • Preliminary Well Assessment—approval for drilling a well that will draw more than 10,000 gallons per day/1 million per year • Water Appropriations Permit—permit required to draw more than 10,000 gal/day, 1 million/yr. • Groundwater Hydrology Program—monitors statewide resources. <p><i>Minnesota Board of Water and Soil Resources (BWSR)</i></p> <ul style="list-style-type: none"> • County Groundwater Plans—reviews and approves county groundwater protection plans. <p><i>Minnesota Pollution Control Agency (MPCA)</i></p> <ul style="list-style-type: none"> • Minnesota Environmental Response and Liability Act (MERLA)—investigates, enforces clean-up of releases of hazardous substances, pollutants, and contaminants to groundwater. • Leaking Underground Storage Tank (LUST)—investigates, enforces clean-up of releases of hazardous substances, pollutants, and contaminants to groundwater. • Closed Landfill Program—completes closure requirements on former MPCA-permitted sanitary landfills. <p><i>Minnesota Department of Public Safety (DPS)</i></p> <ul style="list-style-type: none"> • Emergency Response—state duty officer notified of any leaks, spills, or incidents affecting groundwater. <p><i>Minnesota Department of Agriculture (MDA)</i></p> <ul style="list-style-type: none"> • Agricultural Chemicals—state duty officer notified of any leaks, spills, or incidents affecting groundwater. • MDA is responsible for addressing groundwater contamination from agricultural chemicals: which include pesticides, fertilizers, plant amendments, or soil amendments.

APPENDIX G

Watershed (highlighted items will be new or expanded roles)	SWMO <ul style="list-style-type: none"> • Infiltration of Surface Water—sets volume control standard requiring infiltration, or filtration if soils don't allow for infiltration or are susceptible to contamination. • Recharge Zones—identifies and protects groundwater recharge zones. • Beneficial Re-use—identifies and implements beneficial use/re-use for stormwater to conserve groundwater supplies. • Water Conservation.
County	<i>Scott County</i> <ul style="list-style-type: none"> • Abandoned Well Decommission—provides technical assistance, funding for closing abandoned wells. • Groundwater Protection—prepares Groundwater Protection strategies as part of Comprehensive Plan and SWMO Watershed Plan. • Ambient Groundwater Sampling—testing private wells of consenting landowners for nitrate, bacteria, pesticides and other contaminants.
Cities (Incorporated)	<i>Cities (Incorporated)</i> <ul style="list-style-type: none"> • Wellhead Protection Plan—defined area in which activities pose a potential threat to groundwater used for public water supply. • Infiltration of Surface Water—sets volume control standard requiring infiltration, or filtration if soils don't allow for infiltration or are susceptible to contamination.

Appendix G.2 Roles and Responsibilities of Government for Drinking Water Regulation

Government	Local Units & Roles
Federal	<i>U.S. Environmental Protection Agency (EPA)</i> <ul style="list-style-type: none"> • Safe Drinking Water Act—sets standards, such as Maximum Contaminant Levels for pollutants in drinking water supplies; drinking water protection; water security and sustainability.
State	<i>Minnesota Department of Natural Resources (MDNR)</i> <ul style="list-style-type: none"> • Local Water Supply Planning – provides a checklist and instructions for water suppliers to help develop plans. <i>Minnesota Department of Public Safety (DPS)</i> <ul style="list-style-type: none"> • Drinking Water Security – the safety and security of drinking water resources is the role of DPS Homeland Security. <i>Minnesota Department of Health (MDH)</i> <ul style="list-style-type: none"> • Well Management Program—sets regulations for drilling new water wells; sealing abandoned water wells. • Safe Drinking Water Act—regulates construction of wells used as public water supply systems. • Health Risk Limits—sets maximum contaminant levels for state drinking water supplies; declares drinking water emergencies.

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Appendix G.2 Roles and Responsibilities of Government for Drinking Water Regulation

Government	Local Units & Roles
	<ul style="list-style-type: none"> Wellhead Protection—community public water systems required to delineate, inventory, and manage an inner wellhead management zone and create a formal wellhead protection plan. Source Water Assessment—all public drinking water systems were provided source water assessments by MDH, which should be updated by water suppliers. <p><i>Metropolitan Council (MCES)</i></p> <ul style="list-style-type: none"> Metro Water Supply Planning—provides regional planning and research on metro water supplies (surface and groundwater). Laboratory Testing Services—approved laboratory testing for groundwater, surface water, and drinking water samples.
Watershed (highlighted items will be new or expanded roles)	<p><i>SWMO</i></p> <ul style="list-style-type: none"> Restore Impaired Waters – implements strategies to reduce health risks in surface water from bacteria and nitrate.
County	<p><i>Scott County</i></p> <ul style="list-style-type: none"> Private Well Testing—tests for bacteria and nitrate. Research—ongoing study of nitrate in drinking water supplies in Scott County; collaboration with MDA on Targeted Townships sampling for nitrate. Outreach—sponsors outreach on nitrate reduction and agricultural groundwater protection in rural watershed.
Cities (Incorporated)	<p><i>Cities (Incorporated)</i></p> <ul style="list-style-type: none"> Water Supply Plan—public water suppliers develop plan as part of comprehensive planning; plan also required if water suppliers want to expand the system. Water Conservation—public water suppliers develop voluntary water conservation measures by ordinance.

Appendix G.3. Roles and Responsibilities of Government for Surface Water Regulation

Government	Local Units & Roles
Federal	<p><i>U.S. Environmental Protection Agency (EPA)</i></p> <ul style="list-style-type: none"> Clean Water Act—requires states to identify and submit a list of impaired waters; investigate and identify sources of impairment; and determine Total Maximum Daily Loads. <p><i>U.S. Army Corps of Engineers (USACE)</i></p> <ul style="list-style-type: none"> Rivers and Harbors Act, Sec. 10—placement of structures in navigable waters of the U.S.; work in or affecting navigable waters of the U.S. Clean Water Act Section 404 Permits—permit for discharge of dredged or fill material into the waters of the U.S.

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Appendix G.3. Roles and Responsibilities of Government for Surface Water Regulation

Government	Local Units & Roles
State	<p><i>Minnesota Department of Natural Resources (MDNR)</i></p> <ul style="list-style-type: none"> Public Waters Work Permit—permits for work taking place below the ordinary high water level of public waters. Lake Aeration Permit—permit for installation and operation of an aeration system in public waters Dam Safety Permit—permit required to perform major dam maintenance; modify dam operation; reconstruct, remove, or build a dam; or transfer a dam’s ownership. Some exemptions for smaller dams. Permit for Chemical Treatments (Alum)—both DNR and MPCA must permit these treatments. Surface Water Appropriation Permits—permit required to withdraw surface water for irrigation. Surface Water Hydrology Programs—monitoring and assistance for gaging and rating curves. <p><i>Minnesota Board of Water and Soil Resources (BWSR)</i></p> <ul style="list-style-type: none"> County Comprehensive Water Plans—reviews county comprehensive water plans. Watershed Management Organization/Watershed District Oversight—sets requirements for watershed management organizations/Watershed Districts; reviews and approves major reports, such as Watershed Plans and Annual Reports. Conflict Resolution—provides resolution of water policy issues and conflicts. Legislative Liaison—provides forum for local issues, priorities to be incorporated into state public policy; coordinates state and federal resources to realize local priorities. Soil and Water Conservation District Oversight—functions as the state soil conservation agency; sets requirements for SWCDs; reviews and approves major documents; directs private land soil and water conservation programs. Minnesota Wetland Conservation Act—administers rules for WCA. <p><i>Minnesota Pollution Control Agency (MPCA)</i></p> <ul style="list-style-type: none"> Water Quality Certification, Section 401 of the Clean Water Act—certification for activities that require federal permits (Section 10, Section 404, FERC). Surface Water Standards—establish standards for surface water quality. Surface Water Ambient Monitoring Program—establish background water quality statewide. Impaired Waters—complete major watershed assessments; propose impaired waters list; work with cooperators on study, TMDLs, Restoration and Protection Plan. Permits for Chemical Treatment (Alum)—both the MPCA and DNR must issue a permit for chemical treatment. <p><i>Minnesota Department of Public Safety (DPS)</i></p> <ul style="list-style-type: none"> Emergency Response—state duty officer notified of any leaks, spills, or incidents affecting surface water.

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Appendix G.3. Roles and Responsibilities of Government for Surface Water Regulation

Government	Local Units & Roles
	<p><i>Minnesota Department of Agriculture (MDA)</i></p> <ul style="list-style-type: none"> Emergency Response—state duty officer notified of any leaks, spills, or incidents affecting surface water. Monitoring—conducts monitoring and assessment of agricultural chemicals in groundwater and surface water. <p><i>Metropolitan Council (MCES)</i></p> <ul style="list-style-type: none"> River and Stream Water Quality Monitoring Program in Metro Area.
Watershed (highlighted items will be new or expanded roles)	<p><i>SWMO</i></p> <ul style="list-style-type: none"> Watershed Planning—develops and adopts a Watershed Management Plan. Monitoring—develops and implements monitoring programs to assess current condition, trends, constituent concentrations, and loading. Subwatershed Assessments—conducts assessment of physical river and stream conditions to identify structural and habitat restoration needs. Restore Impaired Waters—implement strategies to restore water quality to state standards. Protect through Standards—set standards for floodplain alteration, wetland alteration, buffers, intercommunity flows, and drainage alteration protective of water quality and flow rates/volumes. Compliance—ensure local adoption and implementation of local water management plans and VRWJPO Standards.
County	<p><i>Dakota County SWCD</i></p> <ul style="list-style-type: none"> Wetland Conservation Act Rules and Administration—regulates draining and filling wetlands larger than 2,000 sq. feet; requires 2:1 replacement of drained or filled wetlands. <p><i>Scott County SWCD</i></p> <ul style="list-style-type: none"> Wetland Conservation Act Rules and Administration—regulates wetlands through Minn. Rules Chapter 8420 in Belle Plaine, Blakeley, Helena, Jackson, Louisville, New Market, Sand Creek, and Spring Lake Townships.
Cities (Incorporated)	<p><i>Cities (Incorporated)</i></p> <ul style="list-style-type: none"> Local Water Management Plans—cities adopt watershed standards in Local Water Management Plans and adopt ordinances to implement the plan; permits issued. Wetland Conservation Act Rules and Administration—regulates wetlands through Minn. Rules Chapter 8420 within city limits in Scott County. Lake and Stream Management Plans—plan to protect, improve, and maintain lakes or stream, with or without an impaired waters involvement.
Townships (Incorporated)	<p><i>Townships (Unincorporated)</i></p> <ul style="list-style-type: none"> Wetland Conservation Act Rules and Administration—regulates wetlands through Minn. Rules Chapter 8420 within

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Appendix G.3. Roles and Responsibilities of Government for Surface Water Regulation

Government	Local Units & Roles
	<p>Cedar and Credit River townships in Scott County.</p> <ul style="list-style-type: none"> Local Water Management Plans—townships adopt watershed standards in Local Water Management Plans and adopt ordinances to implement the plan; permits issued for erosion and sediment control.

Appendix G.4. Roles and Responsibilities of Government for Stormwater Regulation

Government	Local Units & Roles
Federal	<p><i>U.S. Environmental Protection Agency (EPA)</i></p> <ul style="list-style-type: none"> National Pollutant Discharge Elimination System (NPDES)—controls water pollution by regulating point sources that discharge pollutants into the waters of the U.S.
State	<p><i>Minnesota Pollution Control Agency (MPCA)</i></p> <ul style="list-style-type: none"> NPDES General Stormwater Permit for Construction Activities—permit for construction that disturbs one or more acres; requires preparation of stormwater pollution plan for erosion and sediment control. NPDES General Industrial Stormwater Permit—permit for industrial/commercial activities that affect stormwater; requires preparation of a stormwater pollution prevention plan NPDES Phase II MS4 Stormwater Permit—permit required of municipal separate storm sewer systems serving populations less than 100,000 located in urban areas; requires stormwater pollution prevention program.
Watershed (highlighted items will be new or expanded roles)	<p><i>SWMO</i></p> <ul style="list-style-type: none"> Protect through Standards—set standards for stormwater management and maintenance protective of water quality and stable flow rates/volume. Restore Impaired Waters—implement strategies to retrofit and improve stormwater management to restore water quality to state standards. Compliance—ensure local adoption and implementation of Standards. <p><i>Vermillion River Watershed Joint Powers Organization (VRWJPO)</i></p> <ul style="list-style-type: none"> Protect through Standards—set standards for stormwater management and maintenance protective of water quality and stable flow rates/volume. Restore Impaired Waters—implement strategies to retrofit and improve stormwater management to restore water quality to state standards. Compliance—ensure local adoption and implementation of Standards.
County	<p><i>Scott County</i></p> <ul style="list-style-type: none"> Stormwater Management—regulates stormwater through Scott County Zoning Ordinance Chapter 6. Erosion Control—regulates erosion control through Scott County Zoning Ordinance Chapter 6.

APPENDIX G

Appendix G.4. Roles and Responsibilities of Government for Stormwater Regulation

Government	Local Units & Roles
	<ul style="list-style-type: none"> Grading Permits—permit for land-disturbing activities in unincorporated areas in accordance with Scott County Ordinance Chapter 6; requirement for permit is Natural Resource Management Plan or Erosion and Sediment Control Plan. Maintenance—all stormwater management structures and facilities owned by Scott County shall be maintained to function as originally designed.
Cities (Incorporated)	<i>Cities (Incorporated)</i> <ul style="list-style-type: none"> Stormwater Pollution Prevention Plan—plan is required of cities with MS4 permits. Grading Permits—permits for land-disturbing activities in accordance with Scott County Ordinance Chapter 6; requirement for permit is Natural Resources Management Plan or Erosion /Sediment Control Plan. Maintenance—all stormwater management structures and facilities shall be maintained to function as originally designed.
Townships (Incorporated)	<i>Townships (Unincorporated)</i> <ul style="list-style-type: none"> Maintenance – all stormwater management structures and facilities shall be maintained to function as originally designed.

Appendix G.5. Roles and Responsibilities of Government in Shoreline/Floodplain Regulation

Government	Local Units & Roles
Federal	<i>Federal Emergency Management Agency (FEMA)</i> <ul style="list-style-type: none"> National Flood Insurance Program—identify and publish special flood hazards and flood risk zones as authorized and required by Congress.
State	<i>Minnesota Department of Natural Resources (MDNR)</i> <ul style="list-style-type: none"> Shoreland Management—requirement for counties to have shoreland ordinance regulating development. Municipal Shoreland Management—requirement for cities with shoreland to have ordinance regulating development. Aquatic Plant Management—installation of aquatic plants below ordinary high water level of public water bodies National Flood Insurance Program—implements NFIP for participating communities.
Watershed (highlighted items will be new or expanded roles)	<i>SWMO</i> <ul style="list-style-type: none"> Monitoring—develops monitoring program to assess current river and stream rates and volume, trends, and inputs to calibrate modeling software. Subwatershed Assessments—conducts assessment of physical river and stream conditions to identify projects for restoration of natural hydrology and infrastructure management. Restoration of Shoreland/Floodplain Habitat—develops strategies to restore habitat to prevent erosion, filter pollutants, reduce runoff temperatures, and improve resilience.

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Appendix G.5. Roles and Responsibilities of Government in Shoreline/Floodplain Regulation

Government	Local Units & Roles
	<ul style="list-style-type: none"> • Protect through Standards—set standards for floodplain alteration, wetland alteration, buffers, intercommunity flows, and drainage alteration protective of water quality and flow rates/volumes. • Intercommunity Flows—resolve intercommunity conflicts arising from shoreland/floodplain alterations in unincorporated areas. • Cooperate with Partners. <p><i>Vermillion River Watershed Joint Powers Organization (VRWJPO)</i></p> <ul style="list-style-type: none"> • Monitoring—develops monitoring program to assess current river and stream rates and volume, trends, and inputs to calibrate modeling software. • Subwatershed Assessments—conducts assessment of physical river and stream conditions to identify projects for restoration of natural hydrology and infrastructure management. • Restoration of Shoreland/Floodplain Habitat—develops strategies to restore habitat to prevent erosion, filter pollutants, reduce runoff temperatures, and improve resilience. • Protect through Standards—set standards for floodplain alteration, wetland alteration, buffers, intercommunity flows, and drainage alteration protective of water quality and flow rates/volumes. • Intercommunity Flows—resolve intercommunity conflicts arising from shoreland/floodplain alterations in unincorporated areas. • Cooperate with Partners.
County	<p><i>Scott County</i></p> <ul style="list-style-type: none"> • Shoreland and Floodplain—regulation of shoreland and floodplain in unincorporated areas through Scott County Zoning Ordinance Chapters 70 and 71. <p><i>Dakota County</i></p> <ul style="list-style-type: none"> • Shoreland and Floodplain—regulation of shoreland and floodplain in unincorporated areas through Dakota County Ordinance 50. • Shoreland Protection—permanently protects shoreland through easement acquisition and restoration/management planning. <p><i>Dakota SWCD</i></p> <ul style="list-style-type: none"> • Shoreland Protection—protects shoreland through federal and state conservation programs and restoration/management planning.
Cities	<i>Cities (Incorporated)</i>

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Appendix G.5. Roles and Responsibilities of Government in Shoreline/Floodplain Regulation

Government	Local Units & Roles
(Incorporated)	<ul style="list-style-type: none"> Shoreland and Floodplain— regulation of shoreland and floodplain via local ordinances.

Appendix G.6. Roles and Responsibilities of Government for Wastewater Regulation

Government	Local Units & Roles
Federal	<p><i>U.S. Environmental Protection Agency (EPA)</i></p> <ul style="list-style-type: none"> Section 301—sets requirements for publicly owned treatment plants to pretreat certain types of industrial wastewater. Section 304—sets effluent guidelines for industrial discharges to surface water or publicly owned treatment plants.
State	<p><i>Minnesota Pollution Control Agency (MPCA)</i></p> <ul style="list-style-type: none"> State Discharge System/National Pollutant Discharge Elimination System Permit—required for all point source discharge of treated wastewater to surface water. Wastewater Treatment Certification—provides training and certification for wastewater treatment plant operators. Subsurface Sewage Treatment Systems—sets minimum technical standards for individual and mid-size SSTS. SSTS Installers—requires statewide licensing and certification of SSTS professionals. SDS/NPDES Permit—permit required for all point source discharge of process wastewater to surface waters. <p><i>Metropolitan Council (MCES)</i></p> <ul style="list-style-type: none"> Wastewater Treatment—operates wastewater treatment plants; complies with all permit conditions; sets requirements for effluent; works to expand or repair wastewater infrastructure; conducts monitoring, inspections, and complaint response. Sewer Availability Charge—one-time fee for hook-up to the sanitary sewer and increase in capacity. Industrial Discharge Permit—permit is needed to discharge process wastewater to the wastewater treatment plant. Pre-treatment Pollution Prevention—working with industrial dischargers to reduce pollutants in effluent.
Watershed (highlighted items will be new or expanded roles)	<p><i>SWMO</i></p> <ul style="list-style-type: none"> Cooperate with Partners. <p><i>Vermillion River Watershed Joint Powers Organization (VRWJPO)</i></p> <ul style="list-style-type: none"> Cooperate with Partners.
County	<p><i>Scott County</i></p> <ul style="list-style-type: none"> SSTS—regulated through Scott County Ordinance 4.
Cities (Incorporated)	<p><i>Cities (Incorporated)</i></p> <ul style="list-style-type: none"> SSTS—regulated through Scott County Ordinance 4.

APPENDIX G

Appendix G.6. Roles and Responsibilities of Government for Wastewater Regulation

Government	Local Units & Roles
Townships (Incorporated)	<i>Townships (Unincorporated)</i> <ul style="list-style-type: none"> SSTS—regulated through Scott County Ordinance 4.

Appendix G.7. Roles and Responsibilities of Government in Fish and Wildlife

Government	Local Units & Roles
Federal	<i>U.S. Department of the Interior—U.S. Fish and Wildlife Service (USFWS)</i> <ul style="list-style-type: none"> Manages Minnesota Valley Wetland Management District; Minnesota Valley National Wildlife Refuge; provides land management and fire protection; land acquisition; wildlife inspection; invasive species information; endangered species listing; permits for working near endangered species, import or export of species, and migratory bird permits (for falconers, for example).
State	<i>Minnesota Department of Natural Resources (MDNR)</i> <ul style="list-style-type: none"> Designation and management of trout streams. Acting as agent for fish stocking. Endangered species—maintains state list of threatened and endangered species. Stream Restoration—protects prime fish and wildlife habitat through land acquisition (aquatic management areas [AMAs] and wildlife management areas [WMAs]); undertakes and provides grants for aquatic habitat restoration. Invasive Species Permits—permits, grants, and authorizations to comply with invasive species laws and rules. State Climatology Office—provides current weather and climate trend data; drought and flooding condition reports and alerts.
Watershed (highlighted items will be new or expanded roles)	<i>SWMO</i> <ul style="list-style-type: none"> Subwatershed Assessments—conducts assessment of physical river and stream conditions to identify projects for restoration of fish and wildlife habitat. Restoration of Shoreland and Aquatic Habitat—develops strategies to restore habitat to prevent sedimentation, filter pollutants, reduce stream temperatures, provide in-stream habitat, maintain groundwater inflow, and improve resilience. Cooperate with Partners.
County	<i>Scott County</i> <ul style="list-style-type: none"> County Agricultural Inspector—provides technical assistance, ensure noxious weed ordinance enforced, provides training on weed removal and management to townships and cities.

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Appendix G.8. Roles and Responsibilities of Government in Agriculture

Government	Local Units & Roles
Federal	<p><i>U.S. Department of Agriculture (USDA)</i></p> <ul style="list-style-type: none"> <i>Natural Resource Conservation Service (NRCS)</i>—technical assistance for “swampbuster,” “sodbuster,” and highly erodible land determinations; provides benefits for farmers in compliance with these laws. <i>Farm Services Agency (FSA)</i>—provides map for highly erodible land determination; provides benefits to those in compliance with erodible land determinations. <p><i>U.S. Environmental Protection Agency (EPA)</i></p> <ul style="list-style-type: none"> Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)—registration of pesticides; enforcing banned pesticide laws.
State	<p><i>Minnesota Department of Agriculture (MDA)</i></p> <ul style="list-style-type: none"> Nutrient Management Plan—develops guidelines for nutrient management; develops guidelines for soil amendments. Pesticide Applicators—provides training, guidance, and licensing for commercial and private pesticide applicators. FIFRA delegation of pesticide registration—registering pesticides that will be used in Minnesota. Pollinator protection—developing BMPs for protecting pollinators. Technical and financial assistance—provides information, current research, recommendations, and funding options for agricultural BMPs. Regulation—regulates use, storage, handling, and disposal of pesticides and fertilizer. <p><i>Minnesota Pollution Control Agency (MPCA)</i></p> <ul style="list-style-type: none"> Feedlot Permits—permit required for feedlots more than 1,000 animal units; enforcement under Minn. Rules Chapter 7020. Manure Management Plans—required for NPDES-permitted feedlots. <p><i>Minnesota Board of Animal Health (BAH)</i></p> <ul style="list-style-type: none"> Disease Monitoring—surveillance and response to animal diseases and outbreaks; disposal of animal remains.
Watershed (highlighted items will be new or expanded roles)	<p><i>SWMO</i></p> <ul style="list-style-type: none"> Protect through Standards—sets standards for agriculture that protect water quality, groundwater quality, and rate/volume control. Cooperate with Partners. <p><i>Vermillion River Watershed Joint Powers Organization (VRWJPO)</i></p> <ul style="list-style-type: none"> Protect through Standards—sets standards for agriculture that protect water quality, groundwater quality, and

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Appendix G.8. Roles and Responsibilities of Government in Agriculture

Government	Local Units & Roles
	rate/volume control. <ul style="list-style-type: none">• Cooperate with Partners.
County	<i>Scott County</i> <ul style="list-style-type: none">• Feedlot Permits—provides technical assistance to landowners with livestock and nutrient management planning. Scott County terminated the Feedlot Delegation Agreement with MPCA effective January 1, 2013. All feedlot permitting is directed to the MPCA for compliance with Minnesota Rule Chapter 7020.

APPENDIX H

(60 day Comments and Responses to the Comments)

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Agency	Comments	WMO Response	Change made
Board of Water & Soil Resources	The SWMO should be commended for a thorough and well thought out prioritization process. Also of note is a demonstration of the accomplishments in its current plan. The plan includes an excellent evaluation process that will allow the SWMO to gauge its progress as well as communicate to the public its success in plan implementation.	Thank you!	No changes made.
Board of Water & Soil Resources	The Plan is listed as a duration of 2019-2026 which is only eight years. Does the SWMO not intend to take advantage of the ten year interval allowed under MN Stat. 103.231 Subd. 4(a)?	We chose an eight year plan so that our Plan update timeline can align better with the next Comprehensive Plan updates, so that the SWMO Watershed Plan will be updated and can inform the Local Water Plan updates completed as part of the next Comprehensive Plans.	No changes made.
Board of Water & Soil Resources	The plan is required to include an Executive Summary per Minnesota Rules 8410.0050 and must include the following: 1. The purpose of the watershed management organization 2. A map of the organization 3. The primary issues addressed in the plan 4. The main goals in the plan 5. The major actions in the plan 6. The responsibilities of local governments related to implementation of the plan including any changes in responsibilities from the previous plan	Thank you for the reminder of the Executive Summary for the Plan. We knew it had to be done, but somehow it got overlooked before the release of the draft.	An Executive Summary will be written.
Board of Water & Soil Resources	I would like to recognize the excellent work that the WMO has done. We appreciate the opportunity to provide comments. We feel that this plan will provide clear guidance for implementation and look forward to continuing to work with you through the rest of the plan development process.	Thank you!	No changes made.
Department of Natural Resources	We would like to first recognize all of the great work the WMO is doing, and the thought put into the development of this Plan. Your continuing commitment to protection and restoration of water quality, floodplain management, aquatic invasive species prevention/control, groundwater sustainability, and restoration and protection of stream, natural areas and native communities is very important and greatly appreciated by DNR. We also commend the WMO for acknowledging the adverse impacts to water quality, flooding, wetlands and aquatic habitat associated with traditional agricultural drainage practices, and including a strategy in the Plan to move towards multi-purpose management of public ditch systems in the future.	Thank you!	No changes made.

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Department of Natural Resources	The photos on the cover and in Section 1 were very effective at explaining the unique and challenging features in Scott County. We also appreciate the statement that precipitation is increasing, with the references to the data and the well-done graphs in this section.	Thank you!	No changes made.
Department of Natural Resources	Pg. 1-11 and MAP 2 – the reference to Public Waters can be confusing for citizens. While the definition section includes "PWI", it doesn't include a definition for Public Waters. You may want to define it on page 1 -11 or in the glossary so that readers understand that not all waterbodies are public waters and that public waters include inventoried wetlands and streams in addition to lakes.	So noted, we will make that change in the Terms and Acronyms and on pg. 1-11.	Change made in Terms and Acronyms; Public Waters - The MDNR designates certain water resources as public waters to indicate those lakes, wetlands, and watercourses over which the MDNR has regulatory jurisdiction. By statute, the definition of public waters includes both "public waters" and "public waters wetlands." The collection of public waters and public waters wetlands designated by the MDNR is generally referred to as the public waters inventory, or PWI. Public waters are all waterbasins and watercourses that meet the criteria set forth in Minnesota Statutes, Section 103G.005, Subd. 15 that are identified on public water inventory maps and lists authorized by Minnesota Statutes, Section 103G.201. Public waters wetlands include all type 3, type 4, and type 5 wetlands, as defined in U.S. Fish and Wildlife Service Circular No. 39, 1971 edition, that are 10 acres or more in size in unincorporated areas or 2.5 acres or more in size in incorporated areas (see Minnesota Statutes Section 103G.005, Subd. 15a and 17b.) Change made on page 1-11; Public Waters. The public waters of Scott County and the SWMO are shown on Map 2. The MDNR designates certain water resources as public waters to indicate those lakes, wetlands, and watercourses over which the MDNR has regulatory jurisdiction. See Terms and Acronyms for full definition.
Department of Natural Resources	Pg. 1-18 – we appreciate the reference to Natural Area Corridors but feel the following sentence may be somewhat difficult for citizens to understand: "It embraces green infrastructure that leaves the floodplain to holding flood waters, and keeps homes and structures out of harm's way." Can you amplify or clarify?	The county has been using this language since the Natural Area Corridors were first published in 2009 and have not had anyone express any confusion.	No change made.
Department of Natural Resources	Pg. 1-22 – you might consider including the USGS gage on the Minnesota River. https://waterdata.usgs.gov/mn/nwis/uv?site_no=05330000	This Section was modified to reference the USGS gage as additional monitoring completed by others.	The following sentence was added to the paragraph following bullet list of monitoring programs used by the SWMO that begins with "In addition....." "The USGS also operates a gage on the Minnesota River https://waterdata.usgs.gov/mn/nwis/uv?site_no=0533 ."
Department of Natural Resources	Pg. 2-9 – we would suggest that the list of significant issues include aquatic invasive species (including zebra mussels and common carp).	This issues on the list are those that came out of an exhaustive input effort with the residents and businesses in the watershed, and consultation with our partners. We are hesitant to add as a "significant" issue because it didn't materialize as such during those discussions, and as shown in Table 3.3 it did not rank high. With that said, we wish to direct DNR's attention to the fact that the SWMO has included an AIS Strategy as part of the Plan in Section 4.	No change made.

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Department of Natural Resources	Pg. 3-21, Policy 8-1 Public drainage – it would be helpful to include in this policy (or the preceding discussion) some of the potential components of “multi-purpose management”, e.g., wetland restorations, creation of multi-stage channels (two-stage ditches), stream restorations using natural channel design principles.	We disagree, the items listed in the comment are tactics, this section is about Goals and Policies. In addition, decisions about what tactics might be used will be determined based on what is appropriate for specific public ditches per ditch multipurpose assessments. SWMO's commitment to completing such assessments is articulated as part of the Information & Studies Strategy, Table 4.2 in Section 4.	No change made.
Department of Natural Resources	Pg. 4-4&5, Table 4.2. We hope that all studies look at alternatives as well as the proposed goal. For example, are there any alternatives to an outlet for McMahon Lake such as upstream water retention? Is erosion and flooding happening all around the lake? Could the boat launch be modified? Also, please see attached correspondence related to McMahon Lake water level. Over the past 2 years, the water level readings have been less frequent by the current volunteer reader. The County might consider supplementing these readings to gain more data for any forthcoming study.	Your comments are noted. The scope of work for the assessments have not been completed, but such assessments typically include analysis of alternatives. Yes, erosion was happening all around the lake at least where there was a home. We've had a couple more people on the lake in the last two years restore their shoreline to help counteract the high water levels affecting their shoreline. We have a new lake level monitor this year on McMahon, we will talk to them about the possibility of taking more readings and could talk to our survey crew about taking additional readings when out in the field.	No change made.
Department of Natural Resources	For Thole Lake, is infrastructure being impacted? Is the water level higher across many years or does it correspond to multiple years with above average precipitation? Perhaps mention that there are multiple precipitation data collectors around the County and that data could be used to better assess whether high water levels are correlated to weather or a land use change.	At the moment, infrastructure is not being impacted on private land around the lake, but farm fields are. One landowner had water creeping close to his garage last year. Downstream of Thole lake however, along the 1.5 mile long drainageway there are numerous potential problem areas as a result of aging private drainage improvements.	No change made as the description as Table 4.2 already references private infrastructure.
Department of Natural Resources	Pg. 4-25 – what is PPM? Perhaps this is spelled out earlier, but it wasn't easily found so we suggest it should be spelled out.	PPM stands for 2018 Conservation Practice Financial Assistance Program Policy Manual (PPM). It was first spelled out on page 4-15, second paragraph, in that Section.	No change made.
Department of Natural Resources	Pg. 4-27 – the bullet “buffer natural resource” needs an “s”. Some additional specificity would also be beneficial here. For example, “buffer high priority natural resources, such as rare features or native plant communities”. Please refer to our 12/30/2016 early input letter for additional information. This would be a good area where the WMO could tie in strategies or goals to DNR's Central Region Regionally Significant Ecological Areas as detailed in our early input comments.	So noted, we will add the “s”. With respect to DNR's input letter and Regionally Significant Ecological Areas, these areas were considered and were part of how Natural Area Corridors were identified.	Change made: Page 4-27, the bullet for “buffer natural resource” changed to “buffer natural resources”
Department of Natural Resources	Pg. 4-30 – in the AIS section, is it possible to be more specific about what is meant by the term “sustainable lake planning?”	Comment noted, we will create a definition in Terms and Acronyms.	Changes made: Added the term “Sustainable Lake Planning” with the following definition, “A report covering the subwatershed area of a particular waterbody which provides information about the overall health of the lake and trends within the ecosystem, along with lake management plans.”

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Department of Natural Resources	Appendix A – Citizen Survey – given the high response rate on the survey from those using lakes for wildlife watching or walking and running on trails, did this shape the way the WMO looked at priorities and strategies? If so, it may be worth noting within the document where public input for such uses guided a strategy or goal. For example, prioritizing land for easement acquisition can have dual benefits, such as water quality and habitat improvement while providing more available area for the lake uses in survey question #6.	Information gathered from stakeholders, along with WMO's existing reports, studies, and water quality information were all taken into account when developing the list of priority issues as well as the goals and strategies to address those issues. We felt it was an even distribution of responses to question #3 that you are referencing. Our priorities were based more on overall issue responses and a prioritization exercise by our citizen advisory committee and SWCD Board.	No change made.
Department of Natural Resources	Appendix A – with “urban pollution” also having a very high importance in the survey, is there somewhere you can tie a strategy in response to that concern in the body of the Plan?	The Plan includes significant efforts directed at urban pollution in recognition of this issue, and additional ties are unnecessary. For example: 1. The Standards Strategy is largely directed at minimizing the effects of urban development. 2. The Cost Share & Incentives Strategy includes a number of "urban" specific practices as well as other practices like Natural Shoreline Restoration, that can be used in either urban or rural settings. 3. Our education and outreach efforts have both urban and rural components. 4. Most water quality efforts by the SWMO are waterbody/watershed specific based on assessments that tailor the approach to the watershed. (per Information & Studies, and the Targeting Strategies) 5. There are additional expectations for describing salt and sanding practices, and street sweeping priorities included as part of the Strategy for Local Water Plans.	No change made.
Department of Natural Resources	Appendix B – as discussed at the TAC “Needs Assessment” meeting, a continuous recording weather station is planned. Perhaps you could call out in the plan how this information might help guide management and prioritization.	Yes, two weather stations are being installed by the County in 2018. That said, we believe that throughout the Plan the SWMO has shown a commitment to learning and adapting quickly using data and information (see subsection on Evaluating Our Progress in Section 5). This commitment is to all types of information and data. Thus, we believe sufficient justification about the use of data in general is made throughout the Plan, and something specific about weather data is unnecessary.	No change made.
Minnesota Department of Agriculture	Nice job on a well thought out and comprehensive plan.	Thank you!	None needed
Minnesota Department of Agriculture	Page 1-39 & 1-40: As noted, the MDA Township testing program is scheduled to begin this year. Although probably not likely, depending on completion of the draft Plan, this paragraph may be able to be updated.	As noted we have referenced the MDA program. We have not, however, received any results, and now need to move forward with finalizing this Plan. However, please include us on any more detail regarding MDA's plans for monitoring in Scott County so that we can avoid duplication with our efforts scheduled for well monitoring this fall. Also please share any results.	No change made.

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Minnesota Department of Agriculture	Under 'Strategies' on Page 4-25, #7: To clarify the intent (here and elsewhere) consider change the narrative from "control the leakage of nitrates" to "prevent and mitigate leaching of nitrate into groundwater." This is the goal of the Nitrogen Fertilizer Management Plan (NFMP). (https://www.mda.state.mn.us/chemicals/fertilizers/nutrient-mgmt/nitrogenplan.aspx) Consider incorporating this as a reference, or as a source to provide greater details, here or elsewhere in the draft Scott WMO Plan.	Thank you for your comment. We also have a concern about nitrates in groundwater. However, our goals include protection and prevention of pollutants in surface water as well as groundwater. We've clarified our statement of referring to leaching of nitrates in surface and groundwater and a reference to the state plan.	Change made: Targeting Strategy, Page 4-25, 7), change ".....the leakage of...." to ".....the leaching of nitrates for both surface and groundwater...." Also added a sentence at the end of 7) "In addition to SWMO efforts, MDA has published the Nitrogen Fertilizer Management Plan (NFMP) which is available at https://www.mda.state.mn.us/chemicals/fertilizers/nutrient-mgmt/nitrogenplan.aspx ."
Minnesota Department of Agriculture	Page 4-28 & 4-29 (and as discussed in other areas of the draft Plan): There is a lot of support for living cover with state agencies (See EQB 2015 Water Policy Report beginning on page 15) (https://www.eqb.state.mn.us/sites/default/files/documents/WaterReport_091715_FINAL_R.pdf) so consider broadening the potential partnership and scope in this area.	The SWMO is aware of the EQB 2015 Water Policy Report. In addition, per guiding principal #4 in Section 3 "Building, Sustaining, and Utilizing Partnerships are the preferred means of achieving goals and priorities." We have articulated a commitment to partnerships. In addition, our Technical Assistance and Cost Share programs have consistently demonstrated this commitment. If MDA and EQB have new opportunities for partnering, please share them with us! In the interim however, we believe the SWMO and the plan show significant support for using broad partnerships as one of our main means of operating.	No change made.
Minnesota Department of Agriculture	The NFMP also includes implementation of living cover as an activity to address nitrate in groundwater. Working in priority areas, with local advisory team which include farmers, their ag. advisors and local resource agencies, to go beyond the nitrogen fertilizer BMP and implement living cover (and other activities).	Thank you for the clarification.	No change made.
Minnesota Department of Agriculture	The last paragraph under 'Living 'Cover' on page 4-29 aligns well with NFMP goals (See page 57 of the NFMP, 1 st paragraph under 'Alternative Management Tools.") These Alternative Management Tools (AMTs) as they are called in the NFMP include implementation of living cover in areas with highly vulnerable groundwater areas. This may include townships or DWSMAs.	Thank you for the clarification.	No change made.
Minnesota Department of Agriculture	Appendix G, Page 11: The 'State' section mislabels the 'Minnesota Department of Natural Resources' as the agency responsible for the 6 bulleted items. – Please delete 'MNDNR' and insert 'Minnesota Department of Agriculture'. In addition, you may want to include here (or Appendix G, page 1 under Groundwater Regulation?) an additional MDA role which is: "MDA is responsible for addressing groundwater contamination from agricultural chemicals; which includes pesticides, fertilizer, plant amendments, or soil amendments.	So noted, we will make the requested changes.	Changes made: 1) responsible agency from Minnesota Department of Natural Resources, to Minnesota Department of Agriculture in Appendix G, page 11; and 2) Added "MDA is responsible for addressing groundwater contamination from agricultural chemicals: which include pesticides, fertilizer, plant amendments, or said amendments" to list of roles for MDA, page 1 of Appendix G.

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Minnesota Department of Agriculture	The Minnesota Agricultural Water Quality Certification Program (MAWQCP. See: https://www.mda.state.mn.us/awqcp) is noted on page 19 of 22 in the '2018 CPFAP Policy Manual' section. This programs may align with some of the broader 'systems and social strategies' of the draft plan, so consider including this innovative program elsewhere in the draft Plan, such as some of the bulleted items of in the Technical Assistance and Cost Share on page 5-12 or elsewhere.	The SWMO acknowledges the program and it's intended benefits and encourages landowners to participate, and as part of the Technical Assistance and Cost Share program, the SWMO offers a one-time incentive of \$5/acre up to \$1,000 to promote participation in the MN Agricultural Water Quality Certification Program (see Appendix E, 2018 Conservation Practice Financial Assistance Program Policy Manual page 19 on Whole Farm Planning). As a local unit of government the SWMO has limited resources and is choosing to apply them where we expect the greatest return toward the SWMO's goals and priorities.	No change made.
Scott SWCD	Great plan! It is very thorough and well organized, and (at least in our view) it hits on all the right priorities.	Thank you!	No change made.
Scott SWCD	The SWCD strongly supports the Plan's Guiding Principles (p 3-5) but in particular the following: building on existing management programs before initiating new or duplicative programs; building, sustaining, and utilizing partnerships; and building capacity of individuals, communities, and organizations to implement conservation. Each of these is consistent with our own guiding principles and practices.	That's great, we envisioned our Plans complementing each others.	No change made.
Scott SWCD	The SWCD supports the Plan Goals (p 3-6), but in particular 1 (wetland protection), 2 (Surface Water Quality), 3 (Groundwater Management), 5 (Collective Action) and 7 (Resiliency) . We see ourselves playing an active role in supporting and partnering the WMO on these as they are consistent and aligned with our own mission and Comprehensive Plan activities. The SWCD supports Goal 5, as described further on page 3-18, in particular and has made capacity building (i.e. the ability and willingness of individuals and communities to implement conservation) a central theme in its own Comprehensive Plan.	That's great, we envisioned our Plans complementing each others.	No change made.
Scott SWCD	Regarding WCA Roles (p 3-8, Table 3.6), the Decision Authority in New Market Township has changed to Scott SWCD for all application types.	Thanks for the update, we will make that change.	Changes made: Page 3-8, Table 3.6, under New Market Township LGU, under "Decision Authority by Application Type", changed "No-Loss", "Exemption", "Boundary/Type", "Replacement" from "Township" to "SWCD".
Scott SWCD	Under goal 8, at the end of the first paragraph on page 3-21, it states: <i>"That said, the County does see some advantages to shifting the staffing of public drainage activities to the same staff/department that staffs the SWMO."</i> Perhaps consider the following alternative language: "That said, the County does see some potential advantages to shifting certain aspects of public drainage activities to the same staff/department that staff SWMO."	We are fine with that suggested language change.	Changes made: Under goal 8, at the end of the first paragraph on page 3-21; "That said, the County does see some advantages to shifting the staffing of public drainage activities to the same staff/department that staffs the SWMO." Change to the following language: "That said, the County does see some potential advantages to shifting certain aspects of public drainage activities to the same staff/department that staff SWMO."

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Scott SWCD	Also under Goal 8 on page 3-21, Policy 8.1 states: <i>"Facilitate a vision for management of selected public ditches as agricultural drainage benefits decline."</i> It is a bit unclear what this exactly means or implies. Consider the following alternative language for clarification: <i>"In cooperation with the ditch authority, develop a vision for management of the public ditch system that includes consideration of improvements that provide multiple benefits (e.g. drainage and water quality) and possible abandonment where public benefits have ceased."</i>	We are fine with that suggested language change.	Changes made: under Goal 8 on page 3-21, Policy 8.1 states: <i>"Facilitate a vision for management of selected public ditches as agricultural drainage benefits decline."</i> Change language for clarification to: <i>"In cooperation with the ditch authority, develop a vision for management of the public ditch system that includes consideration of improvements that provide multiple benefits (e.g. drainage and water quality) and possible abandonment where public benefits have ceased."</i>
Scott SWCD	Under Cost Share and Incentives (pages 4-16 and 4-17) consider inserting similar language as is used under the Technical Assistance section, relating to the SWCD. Specifically: <i>"The majority of the staff support for this strategy will be provided through the Scott SWCD, with some staff provided by the County, or upstream SWCD's or counties depending on the type of project and its location."</i>	We are fine with that suggested language change.	Changes made: Under the Strategy Cost Share and Incentives (pages 4-16 and 4-17); changed to, "The majority of the staff support for this strategy will be provided through the Scott SWCD, with some staff provided by the County, or upstream SWCD's or counties depending on the type of project and its location."
Scott SWCD	Under Targeting (pages 4-22 through 4-25) the Scott SWCD agrees with the WMO's philosophy regarding how targeting should be used and implemented. We particularly support the notion that the focus should be more on increasing collective action and momentum through capacity building, in conjunction with, if not ahead of, targeting.	Thank you for your support.	No change made.
Scott SWCD	Under Living Cover, the SWCD fully supports the heavy focus on soil health as a strategy (p. 4-29), including use of practices such as conservation crop rotations, cover crops, residue management, and nutrient management. The SWCD has made soil health a top priority in its 2018–2027 Comprehensive Plan. We would just suggest changing the term no-till, however, to high residue management, which includes but is not limited to no-till.	We are fine with that suggested language change.	Changes made: Under Living Cover Strategy, (p. 4-29), change the term "no-till" to "high residue management, which includes but is not limited to no-till."

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Scott SWCD	<p>Under Section 5, consider recognizing and including the continued role of the SWCD as partners in implementation of certain elements of the following activities:</p> <p>--Education and Outreach (p 5-4) particularly as related the SCWEP;</p> <p>--Inventory and Assessment (pages 5-5 and 5-6) particularly as related to subwatershed assessments, groundwater, and land use/cover type inventories; and</p> <p>--Monitoring (pages 5-6 and 5-7) particularly as related to diagnostic and synoptic monitoring as described further in pages 4-1 through 4-3.</p> <p>Current references regarding the role of the SWCD are mostly limited to the TACS program, under Land & Water Treatment (pages 5-12 through 5-16).</p>	<p>So noted, we value our current partnership with the Scott SWCD and have arrived at various roles that currently work well. We anticipated continuation of these roles and the partnership and have even included a policy (Policy 6.6) that calls for using both county and SWCD staff. However, due to the need for flexibility, we did not call out and limit the roles each can play long term. The exception is the TACS program where the SWCD brings other resources and partnerships.</p>	No change made.
Scott SWCD	<p>Under the Capital Improvement Program (pages 5-16 through 5-19) consider adding the Lower Picha Ravine project as a Tier 1 project in Table 5.4. It is listed as the six (and alternate) project in the prioritization schedule appearing in the <i>Sand Creek Near Channel Sediment Reduction Feasibility Report</i> (Inter-Fluve, 2015). Projects 1 through 5 have either been completed, are in the process of being completed, or cannot be implemented due to lack of landowner cooperation. The Lower Picha Creek project is associated with a severely eroding ravine located upstream of a major stream restoration project, several TACS streambank stabilization projects, and Trunk Hwy 169 infrastructure. Furthermore, Picha Creek is impaired, and reducing sediment and flow rates would contribute importantly to its eventual restoration.</p>	<p>We concur that this project should be added because of its size, benefit, and priority ranking.</p>	<p>A row was added to the Tier 1 portion of Table 5.4 with the following information:</p> <p>-Project: Lower Picha Creek Ravine Project</p> <p>-Description: Next priority stabilization project identified as part of the Sand Creek Near Channel Sediment Reduction Feasibility Report/Study. This is a severely eroding ravine located just upstream of a major stream restoration project that was documented following the 2014 disaster.</p> <p>-Cost Estimate: \$450,000</p> <p>-Schedule: Feasibility study and Preliminary Design & Clean Water Fund Grant application 2019; Construction 2020 (or later depending on grant availability)</p>
Scott SWCD	<p>On page 1-48, in the first paragraph its states that feedlots with 10 or more animal units (AU's) must be registered with MPCA. That's only true in the Shoreland Zone. Feedlots outside the Shoreland Zone only have to be registered if they are over 50 AU's.</p>	<p>So noted, we will review and make corrections.</p>	<p>Changes made: Page 1-48, first paragraph, to: "The owners of feedlots <u>in shoreland</u> (with 10 animals or more) in Scott County must register them with the Minnesota Pollution Control Agency (MPCA).</p>
Scott SWCD	<p>The number of wells we monitor increased recently to 15. Attached is a map showing their locations (same map; 3 different formats).</p>	<p>So noted, we will make that change in the text.</p>	<p>Changes made: Page 1-42, second paragraph, change text to say, "Scott SWCD monitors 15 MDNR observation wells..." Also, updated Figure 1.13 to show location of 15 observation wells.</p>
City of Shakopee	<p>Page i, Technical Advisory Committee – Name Spelling Error, Steve Lillehaug</p>	<p>Sorry about that, we will correct the spelling error</p>	<p>Changes made: name was corrected on Page i.</p>

DRAFT 2019 - 2026 SWMO Watershed Plan 60-Day Comment Period Responses

City of Shakopee	Strategies page 4-17, Table 4.3 Are there enough project options for funding WBF (Watershed Based Funding) projects through the TACS program? Innovative project/practice option was thought to be the option that could qualify and fund many of the WBF projects. Verify/Consider the need for additional practice options that lend toward WBF projects that retrofit and/or are regional BMPs for water quality improvements that are funded from the WBF Goals.	We approve anywhere from 50 to 100 technical assistance and cost share projects a year. In 2017, 63 were approved totaling \$514,405. Thus, there is more than enough demand to put to good use the fraction of the Watershed Based Funding (WBF) that was allocated to the TACS program. As for eligible practices under the TACS program, there are currently 24 as described in the Table 4.3 all of which qualify for WBF. As noted in the paragraph preceeding Table 4.3, "additional practices may be considered during the annual reviews based on changing technologies and/or resource needs." The list of eligible practices for 2018 has already been adopted. However, if the city has practices it wished to be added, please send them to the staff at the SWMO or SWCD by mid-October along with a rational justifying inclusion and they will be considered with the update for 2019.	No change made.
City of Shakopee	Another difficulty encountered with WBF was due to limited projects identified in the Watershed LWPs. Verify that there is language that extends the watershed LWPs CIP projects to include projects that are identified in municipality LWPs and CIP programs. This will help with generating a larger pool of projects that qualify for WBF.	There is not blanket language in the draft Plan that coverage incorporates CIPs in LWPs as part of the SWMO's approved CIP list, nor is the SWMO interested in including such broad language. CIPs tend to be larger, very specific projects with very specific benefits. To assure these CIPs are consistent with the SWMO's goals and priorities the SWMO wishes to consider and approve each individually (as opposed to the TACS program where known beneficial "types" of practices are allowed within certain design and cost share parameters.) This intent is articulated in the Plan as part of the Capital Improvements Strategy in Section 4, and the Capital Improvement Program of the SWMO. As part of the Capital Improvements Strategy, the Plan also contemplates Tier 1 and Tier 2 projects with differing levels of support by SWMO. The strategy also publishes criteria and priorities that the SWMO will consider in basing its decision on whether to include a particular proposed project for its CIP list. If the city has CIPs it wishes the SWMO to consider, please discuss with us and be prepared to address the evaluation criteria. The WBF discussion was awkward from our perspective not because there were limited projects in LWPs, but because of timing with the new SWMO Watershed Plan not yet being approved. The funding is for State approved Watershed Plans. We have plenty of CIPs in our new plan, but it was not yet approved. The city has the ability to also request us to include additional CIPs as described above and in the new Plan. The SWMO does, however, reserve the right to choose the CIPs that best fit the SWMO's goals and priorities. That said, we have added a couple of points to the list under the Pollution Strategy for chlorides, clarifying future potential cost share and CIP roles for the SWMO in partnership with Public Works departments.	Changes made: Points added to the Chloride initiatives list: 4) The SWMO will consider cost share for singular de-icing practices in the short term if they meet the definition of innovative. For the long term, the SWMO will consider adding specific de-icing practices to the list of eligible practices as they become commonly accepted. Consideration of both short-term and long-term for cost share needs to be consistent with the Technical Assistance and Cost Share (TACS) Program "Guiding Principles" presented in Section 5. 5) The SWMO will also consider joint Capital Improvement Projects with LGUs designed to switch over larger portions of an overall public works operation to accepted chloride reducing de-icing practices if the LGU has included a plan in their LWP as described above, and as described under the Salt and Sanding Practices Local Water Plans Strategy. To be considered the LGU must consult with the SWMO, and submit their project for consideration. The SWMO will base its decision and level of support using the criteria and priorities described under the Capital Improvements Strategy. 6) The SWMO will also monitor groundwater for chloride (see Monitoring Strategy). 7) If groundwater monitoring finds that chloride is increasing and has the potential to approach the Secondary Drinking Water Standard, the SWMO will consider adding a water softener replacement incentive (to replace older water softeners with newer more efficient systems) as a practice eligible for cost share and incentives. 8) With respect to chloride impairments in Sand Creek and Raven Stream, the SWMO will also consider assisting public wastewater entities with chloride reduction (i.e., individual water softener rebate program) efforts if it is found to be the most cost effective means of achieving necessary reductions. Otherwise, the SWMO considers achieving reductions in wastewater a responsibility of the NPDES permit holder. 9) If water softening associated with rural individual well and septic system discharges are shown to be significant sources the SWMO will: a) first work with the County to ensure septic systems are not failing and are not direct discharges; and b) the SWMO will consider adding a water softener replacement rebate/incentive to the list of practices eligible for cost share and incentives.
Metropolitan Council	SWMO has produced an excellent plan that is consistent with Council policies and the Council's Water Resources Policy Plan.	Thank you!	No changes made
Metropolitan Council	In summary, the plan provides an excellent overall framework for managing the water resources of the watershed.	Thank you!	No changes made
MPCA	We have no additional comments as part of the official 60-day review and comment period since you have fully captured and addressed our input provided at your meetings.	Thank you!	No changes made

APPENDIX I

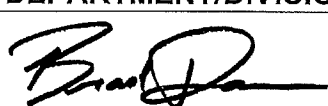
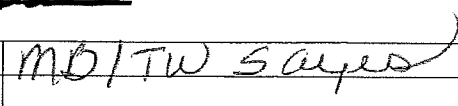
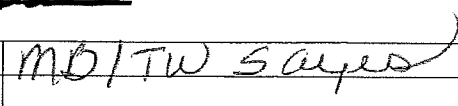
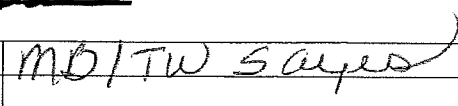
(Request for Board Actions and Resolutions)

AGENDA # 7.1
SCOTT COUNTY, MINNESOTA
REQUEST FOR BOARD ACTION
MEETING DATE: MARCH 19, 2019

ORIGINATING DIVISION:	Planning & Res. Mgmt.	CONSENT AGENDA:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ORIGINATING DEPARTMENT:	Environmental Services, Emergency Management		
PRESENTERS:	Paul Nelson – Environmental Services Scott Haas - Emergency Management	ATTACHMENTS:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
PROJECT:	Scott WMO	TIME REQUESTED:	5 minutes
ACTION REQUESTED:	Adopt Resolution No. 2019-030; Declaring Sufficient Justification for the Emergency Purchase of a Sand Bag Filling Machine; Amending the Comprehensive Water Resources Management Plan of the Scott Watershed Management Organization to Include Purchase of the Machine as a Capital Project; and Amending the Scott Watershed Management Organization Special Taxing District 2019 Budget to Include an Additional \$25,000		
CONTRACT/POLICY/GRANT:	<input type="checkbox"/> County Attorney Review <input type="checkbox"/> Risk Management Review	FISCAL:	<input type="checkbox"/> Finance Review <input type="checkbox"/> Budget Change

ORGANIZATIONAL VALUES:

- ☒ Stewardship: Ensuring the responsible and stable investment of taxpayer dollars and communicating its value to the public
- ☒ Partnership: Aligning existing resources, volunteers and programs to achieve shared goals
- ☐ Leadership: Anticipating changes and managing challenges based on reliable information and citizen input
- ☐ Commitment: Developing a high quality workforce that is dedicated to advancing a safe, healthy and livable community
- ☐ Customer Service: Creating a customer experience that is respectful, responsive and solution-oriented
- ☐ Innovation: Exploring and adopting new technologies and processes with the goal of improving service and reducing the long term cost of service delivery

DEPARTMENT/DIVISION HEAD SIGNATURE:	COUNTY ADMINISTRATOR SIGNATURE:								
									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Approved:</td> <td rowspan="4" style="width: 35%; text-align: center; vertical-align: middle;">  </td> </tr> <tr><td>Denied:</td></tr> <tr><td>Tabled:</td></tr> <tr><td>Other:</td></tr> <tr> <td>Deputy Clerk :</td> <td rowspan="2" style="vertical-align: top;"> DISTRIBUTION/FILING INSTRUCTIONS: Luke Hennen, Sheriff Scott Haas, Director of Emergency Management Troy Beam, Transit and Fleet Manager </td> </tr> <tr> <td>Date:</td> </tr> </table>	Approved:		Denied:	Tabled:	Other:	Deputy Clerk :	DISTRIBUTION/FILING INSTRUCTIONS: Luke Hennen, Sheriff Scott Haas, Director of Emergency Management Troy Beam, Transit and Fleet Manager	Date:	
Approved:									
Denied:									
Tabled:									
Other:									
Deputy Clerk :	DISTRIBUTION/FILING INSTRUCTIONS: Luke Hennen, Sheriff Scott Haas, Director of Emergency Management Troy Beam, Transit and Fleet Manager								
Date:									

Background/Justification:

The purpose of this agenda item is to adopt Resolution No. 2019-030; Declaring Sufficient Justification for the Emergency Purchase of a Sand Bag Filling Machine; Amending the Comprehensive Water Resources Management Plan of the Scott Watershed Management Organization to Include Purchase of the Machine as a Capital Project; and Amending the Scott Watershed Management Organization Special Taxing District 2019 Budget to Include an Additional \$25,000.

Areas of Scott County and the Scott Watershed Management Organization are at risk of flooding that presents a danger to the health and welfare of residents and businesses. This is particularly true for the spring of 2019 given the snow pack that has accumulated. As of March 7, 2019 the National Weather Service indicated that the probability of meeting major flood stage on the Minnesota River at Savage is near 91%, while at Jordan it is 50%.

The ability to reduce flood damage can be mitigated in some cases by sand bagging. However, it is a time consuming process. The efficiency of this process can be greatly improved with the use of sand bag filling machines. However, there are few such machines in Minnesota, and those nearby who have them are generally unwilling to share them as they are dealing with the same flooding issues. Cost for purchasing a sand bagging machine varies depending on the amount of automation. Staff's review finds that one in the range of \$20,000 to \$25,000 will provide a good level of performance.

The Scott Watershed Management Organization (Scott WMO) is a County based Watershed Management Organization with authorities provided under the Metropolitan Surface Water Act of 1982, Minn. Stat. Chapter 103B. These authorities include those necessary for drafting and adopting a Watershed Management Plan (Minn. Stat. 103B.231), establishing a special taxing district (Minn. Stat. 103B.245), completing capital improvements (Minn. Stat. 103B.251); and completing emergency projects (Minn. Stat. 103B.252) among other authorities.

The approved Scott WMO Comprehensive Water Resources Management Plan includes "Goal 4: Flood Management. To protect human life, property, and surface water systems from damage caused by flood events." The Capital Improvement Program described in the current plan version, however, does not include the purchase of a sand bagging machine. However, Minn. Stat. 103B.252 Emergency Projects provides board authority to declare an emergency if it finds that "conditions exist that present a clear and imminent danger to the health or welfare of the people of the watershed management organization, or local unit of government unit, and that to delay action would prejudice the interests of the people of the watershed management organization, or local government unit, or would like cause permanent harm."

Fiscal Impact:

Staff estimates the cost of a machine with good level of performance will be in the range of \$20,000 to \$25,000. Funding for such a machine is not currently in the adopted Scott WMO Special Taxing District budget for 2019. The resolution, therefore, includes action to amend the 2019 budget. An amendment of this amount is possible and will not significantly constrain future operations of the Scott WMO. The Scott WMO maintains a separate fund balance from other County departments. The fund balance at the end of 2018 is within recommendations by the State Auditor, and has capacity to dedicate some for this purchase. This is in part because some planned actions of the Scott WMO in 2018 were completed below the estimated cost and some funds were returned to the Scott WMO for conservation practices approved in previous years that were canceled. Staff will have a more in-depth analysis of 2018 efforts and final fund balance at the March 19, 2019 Board meeting.

**BOARD OF COUNTY COMMISSIONERS
SCOTT COUNTY, MINNESOTA**

Date:	March 19, 2019
Resolution No.:	2019-030
Motion by Commissioner:	Beard
Seconded by Commissioner:	Wolf

**RESOLUTION NO. 2019-030; DECLARING SUFFICIENT JUSTIFICATION FOR THE EMERGENCY
PURCHASE OF A SAND BAG FILLING MACHINE; AMENDING THE COMPREHENSIVE WATER
RESOURCES MANAGEMENT PLAN OF THE SCOTT WATERSHED MANAGEMENT ORGANIZATION TO
INCLUDE PURCHASE OF THE MACHINE AS A CAPITAL PROJECT; AND AMENDING THE SCOTT
WATERSHED MANAGEMENT ORGANIZATION SPECIAL TAXING DISTRICT 2019 BUDGET
TO INCLUDE AN ADDITIONAL \$25,000**

WHEREAS, the Scott County Board of Commissioners established a special taxing district for the Scott Watershed Management Organization (WMO) funding pursuant to Minn. Stat. 103B.245; and the WMO has levy authorities under 103B.241 and 103B.251; and

WHEREAS, the Scott County Board of Commissioners, acting under its authority as the WMO has developed a 2019-2026 Comprehensive Water Resource Management Plan that was approved by the State Board of Water and Soil Resources Board on September 26, 2018, and adopted by the Scott County Board of Commissioners on December 6, 2018; and

WHEREAS, the approved WMO Comprehensive Water Resource Management includes "Goal 4: Flood Management. To protect human life, property, and surface water systems from damage caused by flood events;" and

WHEREAS, the Scott County Board of Commissioners, acting under its authority as the WMO has authority under Minn. Stat 103B.252 to undertake and perform emergency projects; and

WHEREAS, areas of Scott County and the Scott Watershed Management Organization are at risk of flooding that presents a danger to health and welfare of residents and businesses; and

WHEREAS, as of March 7, 2019 the National Weather Service released an update showing the probability of meeting major flood stage on the Minnesota River at Savage is near 91%, while at Jordan it is 50%.

NOW THEREFORE BE IT RESOLVED, by the Scott County Board, acting under its authority as the WMO, finds that conditions exist sufficient to justify the emergency purchase of a sand bag filling machine and that delaying the purchase would prejudice the interest of the people of the County.

**BOARD OF COUNTY COMMISSIONERS
SCOTT COUNTY, MINNESOTA**

Date:	March 19, 2019
Resolution No.:	2019-030
Motion by Commissioner:	Beard
Seconded by Commissioner:	Wolf

BE IT FINALLY RESOLVED, that the Scott County Board, under its authority as the WMO:

1. Amends the Comprehensive Water Resources Management Plan of the WMO Capital Improvement Program Table 5.4 to include a project purchasing a sand bag filling machine in an amount not to exceed \$25,000; and
2. Amends the 2019 Budget for the Scott WMO Special Taxing District to include an additional \$25,000 in the Land and Water Treatment Program for the capital purchase of a sand bag filling machine; and
3. Directs the Environmental Services Program Manager to notify the local unit of government and agency plan holders of the Amendment to the Comprehensive Water Resources Management Plan.

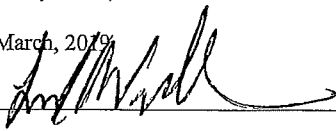
COMMISSIONERS	VOTE			
Weckman Brekke	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain
Wolf	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain
Beard	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain
Beer	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain
Ulrich	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain

State of Minnesota)

County of Scott)

I, Lezlie A. Vermillion, duly appointed qualified County Administrator for the County of Scott, State of Minnesota, do hereby certify that I have compared the foregoing copy of a resolution with the original minutes of the proceedings of the Board of County Commissioners, Scott County, Minnesota, at their session held on the 19th day of March, 2019 now on file in my office, and have found the same to be a true and correct copy thereof.

Witness my hand and official seal at Shakopee, Minnesota, this 19th day of March, 2019.



County Administrator


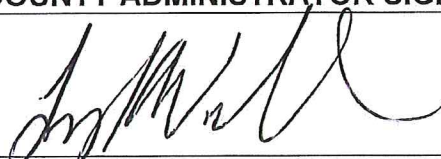
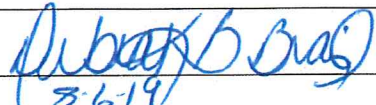
Administrator's Designee

AGENDA # 7.4
SCOTT COUNTY, MINNESOTA
REQUEST FOR BOARD ACTION
MEETING DATE: AUGUST 6, 2019

ORIGINATING DIVISION: ORIGINATING DEPARTMENT:	Planning & Res. Mgmt. Natural Resources	CONSENT AGENDA:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
PRESENTER:	Paul Nelson - 8054	ATTACHMENTS:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
PROJECT:	Scott WMO Watershed Plan	TIME REQUESTED:	N/A
ACTION REQUESTED:	Adopt Resolution No. 2019-112; Approving Amendment No. 1 to the 2019-2026 Scott Watershed Management Organization Comprehensive Water Resources Management Plan		
CONTRACT/POLICY/GRANT:	<input type="checkbox"/> County Attorney Review <input type="checkbox"/> Risk Management Review	FISCAL:	<input type="checkbox"/> Finance Review <input type="checkbox"/> Budget Change

ORGANIZATIONAL VALUES:

- ☒ Stewardship: Ensuring the responsible and stable investment of taxpayer dollars and communicating its value to the public
- ☐ Partnership: Aligning existing resources, volunteers and programs to achieve shared goals
- ☐ Leadership: Anticipating changes and managing challenges based on reliable information and citizen input
- ☐ Commitment: Developing a high quality workforce that is dedicated to advancing a safe, healthy and livable community
- ☐ Customer Service: Creating a customer experience that is respectful, responsive and solution-oriented
- ☐ Innovation: Exploring and adopting new technologies and processes with the goal of improving service and reducing the long term cost of service delivery

DEPARTMENT/DIVISION HEAD SIGNATURE:		COUNTY ADMINISTRATOR SIGNATURE:	
			
Approved:	DB/TW Sayre	DISTRIBUTION/FILING INSTRUCTIONS: Paul Nelson, Environmental Services Program Manager Melissa Bokman, Sr. Water Resources Planner	
Denied:			
Tabled:			
Other:			
Deputy Clerk :			
Date:	8-6-19		

Background/Justification:

The purpose of this agenda item is to adopt Resolution No. 2019-112; Approving Amendment No. 1 to the 2019-2026 Scott Watershed Management Organization (WMO) Comprehensive Water Resources Management Plan.

The Amendment adds a Capital Improvement Project to the Plan in Table 5-4. The project consists of the stabilization of several stream banks along Sand Creek in Section 3 of Helena Township along with the establishment of riparian vegetation. This work was identified as a potential project in the Geomorphic Assessment completed for Sand Creek and the Scott WMO by InterFluve in 2008. This assessment - along

with the Sand Creek Watershed Total Maximum Daily Load (TMDL) and Impaired Waters Diagnostic Study - formed the basis for the Sand Creek Sediment Reduction Strategy that was included in the previous Scott WMO Plan, and continues to be the foundation for the sediment management component of the pollutant strategy in the Scott WMO's new approved Plan.

A public hearing for this Amendment was advertised in the Belle Plaine Herald on June 5 and 12, 2019. The hearing was held on June 24, 2019 and no public comments were received. The Amendment was also routed to agency Plan holders and local partners for review or comment. The County received either positive comments or no comment. The Board of Water and Soil Resources agrees this is considered a minor Plan Amendment. The Watershed Planning Commission recommended approval of the Plan Amendment at their June 24 meeting.

This Amendment adds a project to its Capital Improvement Program Table 5-4.

Project	Description	Cost Estimate	Schedule
Helena Twp Section 3 Near Channel Sediment Control Stabilizations	Project consists of stabilizing several actively eroding stream bank sites along Sand Creek in this reach. These sites are located at the upper end of the knick zone in the Middle Sand Creek Subwatershed where TSS yields are 10 to 15 times higher than other subwatersheds.	\$200,000 to \$300,000 depending on the number of sites and the design	Design: Spring 2019 Construction: Fall/Winter 2019

Fiscal Impact:

Approval of the Amendment will enable award of the project for construction in the fall of 2019, or if delayed, application for state grant funding from the Clean Water Fund in subsequent years. The WMO is under budget with its current Sand Creek Targeted Grant since previous projects came in under their estimates. This leaves the WMO with grant funding that can be used to cover approximately 80% of the project costs. Funding these projects was anticipated in development of the 2019 WMO budget, but a Plan Amendment is needed before the project can be ordered/awarded. This action does not affect the 2019 WMO budget or levy.

**BOARD OF COUNTY COMMISSIONERS
SCOTT COUNTY, MINNESOTA**

Date:	August 6, 2019
Resolution No.:	2019-112
Motion by Commissioner:	Beer
Seconded by Commissioner:	Wolf

**RESOLUTION NO. 2019-112; APPROVING AMENDMENT NO. 1 TO THE 2019-2026 SCOTT WATERSHED
MANAGEMENT ORGANIZATION COMPREHENSIVE WATER RESOURCES MANAGEMENT PLAN**

WHEREAS, the requirement for a minor Amendment as detailed in the current approved 2019 – 2026 Scott Watershed Management Organization Comprehensive Water Resources Management Plan (Plan) does not represent a significant change in the Scott Watershed Management Organization's fundamental goals, policies, and implementation requirements; and

WHEREAS, the project was identified in the Sand Creek Geomorphic Assessment completed by InterFluve in 2008; and

WHEREAS, the project is consistent with the sediment management component of the Pollution Strategy in the current approved 2019 – 2026 Scott Watershed Management Organization Comprehensive Water Resources Management Plan; and

WHEREAS, these stabilizations meet the elements called for in the Plan to be considered high priority for a Capital Improvement Project per the Capital Improvement Strategy in Section 4 of the Plan; and

WHEREAS, the Watershed Planning Commission held a public hearing and unanimously recommended approval of the draft Amendment at their June 24, 2019 meeting; and

WHEREAS, no public comments were received, and agency plan holders either had positive comments or no comments.

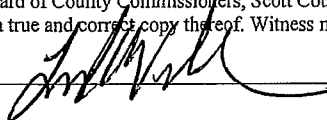
NOW THEREFORE BE IT RESOLVED by the Board of Commissioners in and for the County of Scott, Minnesota, that the minor Amendment No. 1 (as shown in Attachment 1), to the 2019 - 2026 Scott Watershed Management Organization Comprehensive Water Resources Management Plan is hereby adopted.

COMMISSIONERS	VOTE			
Weckman Brekke	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain
Wolf	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain
Beard	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain
Beer	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain
Ulrich	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Abstain

State of Minnesota)

County of Scott)

I, Lezlie A. Vermillion, duly appointed qualified County Administrator for the County of Scott, State of Minnesota, do hereby certify that I have compared the foregoing copy of a resolution with the original minutes of the proceedings of the Board of County Commissioners, Scott County, Minnesota, at their session held on the 6th day of August, 2019 now on file in my office, and have found the same to be a true and correct copy thereof. Witness my hand and official seal at Shakopee, Minnesota, this 6th day of August, 2019.



County Administrator

Administrator's Designee

Attachment 1

This amendment adds a project to its Capital Improvement Program Table 5-4.

Project	Description	Cost Estimate	Schedule
Helena Twp Section 3 Near Channel Sediment Control Stabilizations	Project consists of stabilizing several actively eroding stream bank sites along Sand Creek in this reach. These sites are located at the upper end of the knick zone in the Middle Sand Creek Subwatershed where TSS yields are 10 to 15 times higher than other subwatersheds.	\$200,000 to \$300,000 depending on the number of sites and the design	Design: Spring 2019 Construction: Fall/Winter 2019